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Multilateral Debt Relief through the Eyes of Financial Markets

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Abstract

The economic benefits of debt relief for recipient countries have been the subject of arduous debate, at least partly motivated by the difficulty of identifying the causal effect of debt relief on economic performance—given that performance itself may drive the decision to grant relief. This paper conducts an event study to assess the economic consequences of multilateral debt relief for recipient countries that is robust to these reverse causality issues. It estimates the response of the stock prices of South African multinationals with subsidiaries in those countries to the announcement of debt relief initiatives, and shows that stock prices exhibit a significant increase above those of other firms, especially around the launching of the recent Multilateral Debt Relief Initiative. The improvement in financial markets' assessment of the value of these multinationals is consistent with lower expected levels of future taxation in the recipient countries. Overall, the results are consistent with the "debt overhang" argument for debt relief.

This paper—a product of the Growth and the Macroeconomics Team, Development Research Group—is part of a larger effort in the department to assess the economic impact of debt relief in recipient countries. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at craddatz@worldbank.org.

Multilateral Debt Relief through the Eyes of Financial Markets

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1 Introduction

On July 8th 2005, the Heads of State and Government of the G8 meeting in Gleneagles, UK, announced the launching of the *Multilateral Debt Relief Initiative* (*MDRI*), where they agreed to cancel the historical debt of the world poorest countries with the International Monetary Fund, the World Bank, and the African Development Bank. Since multilateral institutions had become these countries' main creditors, the initiative, with an estimated debt write-off of $50 bn, or about 70 percent of these countries' total stock of debt was expected to provide substantial debt relief (International Development Agency and International Monetary Fund (2006)). However, what the broader public probably does not know is that, although drawing broader media coverage and celebrity attention than its predecessors, the MDRI is just the latest incarnation of a series of efforts to relieve poor countries' financial obligations with multilateral institutions through the *Heavily Indebted Poor Countries* (*HIPC*) initiative, set in motion in 1996 and modified ("enhanced") in 1999.

There are clear humanitarian motives for debt relief that are behind numerous calls from religious leaders, celebrities, and intellectuals arguing that it is morally wrong to collect debt from countries that are at the brink of starvation. However, the case for debt relief is also typically argued on the grounds that current debt burdens maintain poor countries in a situation of *debt overhang,* where socially and privately profitable investment opportunities are foregone because of the implicit tax on their returns imposed by previous debt obligations (Krugman (1988); Sachs and Calvo (1989)). Firms anticipating the high future taxes required to service a massive debt burden may find unprofitable certain investment projects that they would otherwise finance, and governments may be reluctant to incur costly reforms if a large part of their returns would go to foreign creditors.

Since according to the debt overhang argument, debt relief should be associated with increased private and social investment and better macroeconomic performance, many researchers have looked for the impact of debt relief on growth and investment. However, finding causal evidence of this impact using aggregate data is difficult because countries that receive debt relief are not random; countries with extremely high levels of debt and bad economic performance are more likely to receive it. Therefore, one could find a negative correlation between debt relief and growth in aggregate data, even if it actually improves the prospects of countries that receive it. Of course, it may also be the case that countries with good economic prospects get debt relief, in whose case finding a positive correlation between debt relief and economic performance does not provide evidence that the former causes the latter. Moreover, even if there is a causal link, debt relief will likely affect economic performance with a delay that difficults the identification of the impact using time series variation. For these reasons, evidence based on aggregate data has to either just report correlations or depend on strong identification assumptions.

This paper provides new evidence of the impact of multilateral debt relief initiatives using an event-study to determine the effect of these initiatives on firms with operations in the countries they benefited. This approach has several advantages over studies based on aggregated data, because it is much less likely to be affected by reverse causality, and also takes advantage of the forward

looking nature of stock prices to deal with the timing problems. The approach relies on the standard assumption that stock prices quickly reflect the market's view of the impact of these initiatives on the value of firms that operate in these countries, so, if these firms' values improve as a consequence of debt forgiveness, there should be an abnormal increase in their stock prices around major debt relief announcements.

Debt relief can impact the value of firms operating in benefited countries through two channels. The first is through an improvement in the country's economic prospects. Debt relief may induce local governments to allocate more resources to public goods or human capital formation, or may increase private investment, resulting in higher economic growth. To the extent that the value of firms with operations in those countries is positively correlated with the state of aggregate demand, future economic expansion would increase their value. The second channel is the reduced need for future taxation. Absent severe contractions in public expenditure, repaying large levels of public debt likely requires a high level of taxation. In poor countries, where income taxes are hard to impose, these taxes tend to fall on companies.[1] Therefore, as long as markets assign a positive probability to the repayment of the debt, the relief should reduce expected taxation and increase firm value. If any of these channels is in operation, an event study on the behavior of the share prices of publicly traded companies operating in HIPC countries around dates of debt relief announcements provides an indirect test of the hypothesis that debt relief has a positive effect on economic performance .

Since HIPC countries typically lack well functioning and liquid stock markets, this paper follows Guidolin and La Ferrara (2007) and studies the response of the stock prices of multinational firms with subsidiaries and operations on HIPC countries, but that are traded in foreign, more developed financial markets. In particular, it focuses on South African multinational companies traded in the Johannesburg Stock Exchange (JSE), which is a one of the largest and most active emerging stock markets, and where it is possible to obtain meaningful price data at a daily frequency. Focusing on South African multinationals has the additional advantage that these companies are smaller than global multinationals operating in African HIPC countries. Therefore, their operations in these countries are relatively more important and their share prices more likely to respond to events affecting their subsidiaries.[2]

To implement this approach, I build a detailed chronology of the multilateral debt relief initiatives that allows me to identify the dates of different announcements related to the three major initiatives implemented since 1996 (HIPC, Enhanced HIPC, and MDRI), including the dates when individual countries reached any of the milestones considered in the HIPC framework (decision points and completion points). I also gather stock price data for a sample of 35 South African multinational companies with 187 subsidiaries and operations in African HIPC countries during the

[1] According to World Bank (2008) Paying Taxes Report, Sub-Saharan Africa is the continent with the highest overall business taxes, including the highest average profit taxes.

[2] Large global multinationals, such as Unilever, have operations in several African HIPC countries. However, it is unlikely that Unilever's stock price in the London Stock Exchange would vary importantly as a result of events affecting a marginal operation in Kenya. In contrast, operations in HIPC countries, while small, are not marginal for South African multinationals.

period 1995-2006–when the various stages of the initiatives took place. I use these data to estimate a two-factor return model and measure the abnormal returns of these companies around the dates of the announcements, and to formally test the hypothesis that these abnormal returns are equal to zero applying various parametric and non-parametric procedures.

The results show that stock prices of South African multinationals with operations in HIPC eligible African countries exhibit an abnormal and statistically significant increase around the announcement dates of major debt relief initiatives. The magnitude of the increase is also economically significant, with the announcements resulting in a cumulative abnormal return of about one percentage point for the typical parent company. Considering that the parent companies are usually at least an order of magnitude larger than their affected subsidiaries, these results suggest a two-digit cumulative impact on the value of local operations.

Evidence comparing the various stages of multilateral debt relief programs indicates that the latest phases (enhanced HIPC and MDRI) had a larger impact on HIPC connected multinational companies than the original HIPC initiative. Also, country-specific announcements about the achievement of the various milestones of the broad HIPC program (decision and completion points) have little impact on firms' returns, although there is some evidence that reports of a country reaching completion point positively impact the stock prices of related multinationals. Furthermore, the stock price response takes place mainly around the formal announcements of the launching of the major initiatives in the G8 Summit Meetings, with little evidence of stock reactions around the Annual Meetings of the World Bank and International Monetary Fund, where the final details of the implementation are disclosed.

Consistently with the interpretation that the increase in stock prices is related to financial market's reassessment of the value of firms operating in countries benefited by debt relief programs, the increase in stock returns is larger among South African multinational companies that are relatively more exposed to the events, as measured by the total employment in subsidiaries located in eligible countries as a fraction of the employment of the parent company. This comparison further strengthens the causal interpretation of the findings, since it implicitly controls for any potential common effect affecting all companies with operations in HIPC countries , or multinational firms in general.

The stock price response to major debt relief announcements of parent companies in different industries suggests that the underlying increase in value is mainly related to the expectation of lower future taxes rather than improved economic prospects. Companies in resource extraction industries, which are more likely to be the target of taxation and are less dependent on local economic conditions, exhibit a significantly larger stock price increase than companies in service industries where the relevance of local economic conditions vis-a-vis taxes reverses. This finding also indicates that the stock price response is not a mechanical response to potential real exchange rate appreciation associated with debt forgiveness (Rajan and Subramanian (2005a), Rajan and Subramanian (2005b)).

Overall, the evidence presented in this paper suggests that financial markets view the announcements of major debt relief initiatives as positive news for firms operating on these countries, resulting

most likely from a reduction in expected taxes, and support the debt overhang hypothesis of the costs of excessive debt.

This paper relates to the empirical literature on sovereign debt overhang and on the impact of debt relief. Several papers in this literature have used aggregate data to test the debt overhang hypothesis by looking at the relation between debt levels and growth or investment (Claessens (1990), Deshpande (1997) Cordella et al. (2005), Imbs and Ranciere (2005)) and have identified different thresholds over which debt burden is negatively correlated with growth, and in some cases further thresholds above which debt has no growth effect (Cordella et al. (2005)). A slightly different line of research has been followed by Depetris-Chauvin and Kraay (2005), who instead of looking at the relation between debt levels and macroeconomic performance directly study the growth effect of debt relief, finding little evidence that countries experiencing relatively larger reductions in their stock of debt tend to grow faster. While providing interesting results, the main concern with all these papers is that their reliance on aggregate data exposes them to the econometric problems arising from reverse causality and from debt relief not being randomly assigned to countries, and that they have to rely on various econometric techniques and strong identification assumptions to move from correlation to causality.

Indirect, but stronger evidence on the impact of debt relief has recently been provided by Arslanalp and Henry (2005), who also use an event study approach to show that stock markets indexes of countries benefited by the Brady Plan significantly increased relative to a control group after the announcement of the plan. However, since HIPC countries typically lack stock markets Arslanalp and Henry (2005) do not apply their methodology to estimate the impact of the HIPC initiative, and rely instead on indirect arguments to conjecture that HIPC countries are unlikely to benefit from the type of debt relief provided by the Brady Plan because investment in these countries is not constrained by debt overhang but for bad institutions (Arslanalp and Henry (2006)). An additional concern with this paper is that, by looking only at aggregate, country level indicators, their estimates may be contaminated by the endogeneity of the decision to extend the Brady Plan to a particular country, which may be correlated with that country's economic prospects (Kovrijnykh and Szentes (2007)).

This paper contributes to this literature by providing indirect evidence from firm level performance of the impact of multilateral debt relief on HIPC countries that is less likely to be contaminated by endogeneity concerns for several reasons. First, it focuses on the announcement of major initiatives that benefited a large set of countries and that are unlikely to be motivated by any specific country's economic prospects. Second, it exploits the forward looking information contained in the variation in stock prices around specific event dates and relies on local variation of stock prices at a daily frequency to identify the effect of debt relief. Therefore, the findings are not driven by any existing information on a countrie's economic prospects that was available a few days before the announcements. Finally, the use of firm level data also differentiates among firms with ex-ante different exposure to the events to provide a further test that controls for common shocks.

From a methodological standpoint, this paper is closely related to a recent article by Guidolin

and La Ferrara (2007) that also uses an event study to estimate the impact of civil conflict on multinational firms operating diamond mines in Angola. In contrast to Guidolin and La Ferrara (2007), this paper concentrates on a completely different question and focuses on multinationals on an indirect manner, using them to gauge the impact of debt relief on local firms.

The rest of the paper is structured as follows. Section 2 gives an overview of multilateral debt relief to poor countries and presents a chronology of the initiatives that is used to identify the dates of various announcements. Section 3 describes the methodological approach and data. Section 4 presents the all the results. Section 5 concludes.

2 Multilateral Debt Relief to Poor Countries

2.1 A Brief History of Multilateral Debt Relief to Poor Countries

Historically, countries that became part of the group of Heavily Indebted Poor Countries (henceforth HIPC) had little access to commercial lending and relied instead on official financing in the form of bilateral loans from industrial countries and multilateral loans from institutions such as the IMF, the World Bank, and various regional development banks. Official loans to these countries gradually increased until the early 1980s, when many started having problems to service their debts, at the same time as several middle income countries. However, while middle income countries that defaulted on their commercial loans were shut from international capital markets, industrial countries' governments and multilateral institutions reacted to the debt problems of low income countries by rescheduling payments and extending further bilateral and multilateral loans that would allow these countries to avoid defaulting. For this reason, and in contrast to most middle income countries, low income countries maintained a positive net resource transfer during the 1980s (Birdsall and Williamson (2002)).

This additional lending to poor countries was not typically accompanied by growth, resulting on further debt accumulation as a fraction of GDP. By the late 1980s, most low-income countries exhibited symptoms of unsustainable debt levels, with debt-to-export and debt to GDP ratios close to 400 and 150 percent, respectively. At that stage, it became evident that low-income countries were unable to fully serve their official debt, and that some form of broad debt forgiveness was required.

Systematic debt relief to poor countries initially took place on bilateral loans to Paris Club creditors under what became known as the *Toronto Terms*, the *Trinidad Terms*, the *London Terms*, and the *Naples Terms*, all which provided rescheduling under concessional (i.e. below market) interest rates equivalent to a reduction in the net-present-value of the debt stock of about $30 billion.[3] At the same time, new bilateral flows started increasingly taking the form of grants. As a result, an increasing fraction of the debt of low-income countries was owed to multilateral institutions and it was apparent that helping these countries achieve debt sustainability required

[3]See Daseking and Powell (1999)

some form of relief from multilateral debt, which had historically being treated as senior to all other claims and repaid in full, even if by rolling-over old loans.[4]

Multilateral debt relief to poor countries started with the launching of the Heavily Indebted Poor Countries (HIPC) in September 1996 at the 22nd meeting of the G8 countries in Lyon, France. The goal of this initiative was to reduce the debt burden of eligible countries to levels considered manageable, conditional on satisfactory policy performance, and involved cooperation among multilateral and bilateral creditors. Under the initiative, debtor countries with per capita income under $695 and ratios of net-present-value of debt to exports above 200 or 250 percent (depending on country characteristics) would qualify for the program.[5] Qualifying countries with six years of stable macroeconomic conditions under an IMF program would reach a *decision point*, in which creditors arrange a debt relief package, and after no more than three additional years of successful policy implementation they would reach a *completion point,* when they would actually start receiving debt relief. Contrary to initial expectations, only six of the 40 countries that were eligible for HIPC relief had reached a decision point in 1999, and only one– Uganda, had reached completion point.

The slow advances of debt relief under the original HIPC initiative, mainly the result of eligibility conditions, led to criticism from international aid groups and African governments who were calling for substantial modifications to the initiative, and a consensus emerged among industrial countries for faster implementation of debt relief. As a result, the leaders of the G-7 countries, meeting in Cologne in June 1999, announced a comprehensive review on the HIPC initiative to provide faster, deeper, and broader debt reduction in what became known as the *Enhanced HIPC Initiative (E-HIPC)*. The main changes consisted in broadening of the eligibility criteria by reducing the debt-to-export ratio to 150 percent, and shortening of the time required to reach the decision point to three years. Moreover, a country reaching decision point under the enhanced HIPC would immediately receive some debt relief in the form of reduced debt service. Debt stock reductions would take place once the country reached the completion point. The enhanced initiative also put emphasis on a country's commitment to poverty reduction in two ways: first, in addition to a good policy track record, a country had to submit a sustainable poverty reduction strategy to become eligible (in the form of a Poverty Reduction Strategy Paper, PRSP, written with participation of civil society); second, countries had to commit to use the resources freed by debt relief to achieve the goals set in the PRSP. Because of the broader eligibility criteria and of public pressure, sixteen additional countries were approved for decision point, and started receiving debt relief in the year 2000.

The HIPC initiative emphasized the reduction of debt burdens to sustainable levels to help benefited countries fight poverty, but the view that multilateral debt cancellation was the only possible solution to the problems of HIPC countries became increasingly popular shortly after the announcement of the enhanced version of the initiative. As a result, a broad campaign was launched to convince leaders of industrial countries, those with most voting rights on multilateral institutions,

[4]There is no consensus on whether multilaterals engage in defensive lending. While some authors argue that this is the case (Bulow and Rogoff, 2005), other have found no robust evidence of such behavior in the data (Kraay and Geginat, 2007)

[5]The ratio was replaced by 280 percent of government revenue for very open economies

to provide some form of debt forgiveness. This campaign culminated in the announcement of the *Multilateral Debt Relief Initiative* (MDRI) at the Gleneagles Summit Meeting of the Heads of State and Government of G8 countries in July 2005. The goal of this initiative is to further reduce the debts of HIPC countries and help them achieve the *Millennium Development Goals* set by world leaders in September 2000, during the United Nations Millennium Summit. Although the initiative operates similarly to the HIPC, its main difference is that it contemplates that once a country completes the HIPC process (i.e. reaches completion point), all debt it contracted with the IMF, the World Bank, and the African Development Bank before 2003-2004 would be forgiven.[6]

2.2 Multilateral Debt Relief Event Dates

This paper's analysis separately considers two types of multilateral debt relief events: (i) those common to all eligible countries, such as the announcements of the different stages of the HIPC initiative and the MDRI (henceforth labeled *major initiatives*), and (ii) those that benefit an individual HIPC country, such as the announcement that a nation has reached a decision or completion point.

The brief historical discussion above evidences that major initiatives are typically a matter of lengthy discussions, so a choice has to be made regarding the relevant announcement dates. For all three major initiatives, the announcement process typically entails three stages. During the first stage there are numerous requests for debt relief that place the discussion of an initiative in the agenda of a G8 Summit Meeting. In the second stage, which takes place during or shortly before the summit, the finance ministers of G8 countries agree on the details of the forthcoming initiative. Finally, the Heads of State and Government of G8 countries formally announce the initiative during the summit meeting, with the exact details of financing, implementation, eligibility, etc., to be worked out in the coming months, and disclosed during the Annual Meetings of Boards of Governors of the World Bank and the International Monetary Fund. The chronology of these stages for the three major multilateral debt relief initiatives is summarized in Table 1. A detailed chronology of the initiatives, including all the discussion meetings is available in the Appendix.

For each major debt relief initiative, the event dates are selected following a semi de-facto approach by choosing either the day of the G8 finance ministers meeting or the day of heads of state meeting, depending on which day has the highest the number of news related to the initiative reported by the international press according to Factiva Newsplus. The number of this news around those days and around the days of the annual meetings of the World Bank and IMF is presented in Figure 1. It shows that the announcements made following the meetings of the Heads of State and Government of G8 countries are those that receive the most press coverage. Therefore, the following days are consider as benchmark announcement dates for the major initiatives: June 27, 1997 for the original HIPC initiative, June 18 for the enhanced HIPC, and July 8, 2005 for the MDRI. Results

[6] Unlike the HIPC Initiative, the MDRI is not comprehensive in its creditor coverage and does not involve participation by official bilateral or commercial creditors, or of multilateral institutions other than the above-mentioned three.

considering the September dates will be discussed in the robustness analysis.

The process for countries reaching decision and completion points under the HIPC initiative also entails various steps, such as the preparation of a debt sustainability analysis, and a series of World Bank and IMF discussions of whether a country meets or is progressing towards the conditions for each milestone. However, since most of these discussions are technical and take place within multilateral institutions, I consider as event-dates for these country specific events the day when the Board of Governors of the World Bank and International Monetary Fund officially announces that a country reaches any of these milestones , as documented in the *Country Report Documents* of the HIPC initiative.[7]

Figure 2 shows the distribution of multilateral debt relief events, including the announcement of major initiatives as well as decision and completion points for benefited countries. As previously mentioned, just a few countries reach decision or completion points between 1996 (the year of the launching of the original HIPC initiative) and 1999, but there is a clear cluster of countries reaching decision point shortly after the announcement of the Enhanced HIPC Initiative.

3 Methodology and Data

Under the assumption that the stock returns of multinational parent companies operating in HIPC countries respond to events affecting their subsidiaries, and that the value of these subsidiaries is not negatively correlated with the economic performance of the host country, a standard event study that quantifies the impact of multilateral debt relief announcements on the stock prices of multinational companies operating in HIPC eligible countries provides indirect evidence of the overall impact of multilateral debt relief on the economic performance of receiving countries. This paper implements such a study focusing on the stock prices of South African multinationals operating in African HIPC eligible countries, and testing the hypothesis that these announcements convey positive news for these companies. To this end, the parameters of the following augmented two-factor return model are estimated:[8]

$$R_{i,t} = \alpha_i + \beta_i R_t^M + \gamma_i R_{i,t}^I + \sum_{l=1}^{L} \theta_i^l S_{i,t}^l + \sum_{\tau=t_1}^{t_2} \delta_\tau D_{\tau,t} + \epsilon_{i,t}, \;\; t \in [t_0, t_2] \tag{1}$$

where $R_{i,t}$ is the stock return of company i between trading days $t-1$ and t, R_t^M and $R_{i,t}^I$ are the market return and the return of company i's industry during the same period, respectively, $S_{i,t}^l$ is a dummy variable that controls for the impact of corporate events and takes the value 1 if corporate-event type l affected company i in day t, $D_{\tau,t}$ is an event-time dummy variable that indicates whether a multilateral debt relief event benefiting a subsidiary of parent company i occurs

[7] Available at http://www.imf.org/external/np/hipc/index.asp

[8] A multi-factor model is used instead of the classic market model because it improves the fit, reducing the variance of the residuals and increasing the power of tests based on those residuals; adding the corporate events also contributes to this end. The third factor typically considered in multifactor models cannot be included, however, because there are no data on size indexes for the earlier years of the sample.

at time t and takes the value 1 when t equals τ and zero otherwise, with τ between $t_1 > t_0$ and t_2,which denote the beginning and end of the event window in calendar time, and $\epsilon_{i,t}$ is an error term that is correlated across firms in a given day but assumed independent across days. The parameters α, β, γ, θ, and δ are coefficients to be estimated. The coefficients of interest are the δ_τ associated with the event-time dummies, which capture the abnormal returns of the company during the event window.

Under the hypothesis that the event under study has a positive impact on parent companies' returns, the δ_τ coefficients should be significantly positive around or immediately after the event date, and the *cumulative abnormal return* (CAR), defined as

$$\widehat{CAR_t} = \sum_{\tau=t_1}^{t} \hat{\delta}_\tau, \;\; \tau \in [t_1, t_2] \tag{2}$$

should be significantly increasing during the event window. The event study literature typically privileges the analysis of the CAR because the cumulative impact of the events is easier to visualize; this convention is followed in the rest of the paper.

Two aspects of this identification strategy deserve further discussion. First, the impact of events affecting a subsidiary on the value of its parent company depends on the relative importance of the former for parent's earnings. If the subsidiary is small relatively to the parent, even a large change in the its value will result in a small change in parent's returns that may be hard to separate from normal return fluctuations using statistical procedures. This means that tests based on the response of parents' returns could have low power, which would tend to bias the results against finding a significant abnormal return as a result of the events under consideration. This is precisely the reason for this paper's focus on South African multinationals with operations in HIPC countries, which are smaller than other multinationals operating in these countries. For instance, the median assets of South African multinationals operating in Ghana were about US$ 8 bn in 2006. In contrast, the largest multinationals operating in Ghana in various industries are Royal Dutch Shell PLC., Barclays PLC., and Nestle SA., all with hundreds of billions of dollars in assets. Furthermore, the reduced power of standard estimation can be significantly improved by complementing standard results with non-parametric tests with better power properties in small and non-normal samples. Second, event studies rely on the efficient market assumption that news that impacts the value of the firm is quickly incorporated in stock prices. This assumption requires transparent and liquid stock markets. While the JSE is smaller in absolute terms and more illiquid than developed countries' stock markets, it is one of the largest emerging stock markets, with a market capitalization of 1.6 times its GDP–much larger than that of countries like the US, and also one of the most liquid, with a market turnover value similar to Singapore. Moreover, South Africa fares well among emerging markets in terms of investor rights and corporate governance indexes, with a creditor rights index of 3 out of 4 according to Djankov et al. (2007), and an active program to improve corporate governance.

Information on parent-subsidiary relations comes mainly from McGregor (2006) *Who Owns*

Whom South Africa, which reports all South African companies with operations in other African countries at the end of 2006. This publication enumerates the subsidiaries and operations of each South African multinational and reports partial information on the date of initial investment, holdings, and number of employees in each subsidiary. From it, all firms listed in the JSE, and with operations or subsidiaries in African HIPC eligible countries during the period of the initiatives (1995-2006) were selected, to obtain a sample of 35 companies with 187 subsidiaries in 26 countries. This information was complemented and checked with data from United Nations Conference on Trade and Development (1993, 2004), Graham and Whiteside (1997-2004), Lexis-Nexis (2007), business-press reports relating parent and subsidiaries in *Lexis-Nexis* and *Factiva-Newsplus*, and information requests directly sent to South African companies identified as having affiliates in eligible African HIPC countries.[9]

The date of initial investment in subsidiaries located in African HIPC countries reveals whether a parent company is affected by a specific debt relief event. For instance, only companies with active subsidiaries in African HIPC-eligible countries in June 1996 are considered as affected by the original HIPC initiative announcement. Table 2 presents the list of parent companies with investments in African countries that have been eligible for the HIPC initiative since 1996 and the median size in assets and sales of these companies at the end of 2006. The final row of the table displays the average of each measure across companies. Both assets and sales of parents are at about US$ 2 bn, and the average parent company has about 4 subsidiaries. Parent companies with interests in HIPC countries are also homogeneously distributed across industries, as shown in Table 3. Utilities are the only industry where no South African company has affiliates in other African HIPC countries.

Stock returns and corporate-event data for the selected parent companies were obtained from *Bloomberg*. The market return is based on the *JSE All Shares Index* and the industry return associated to each parent is that of the *FT JSE Index* of the industry of the primary activity of the parent company, both also obtained from Bloomberg. The fraction of parent companies with available return data has increased during the period, but even in 1996 there are return data available for more than 70 percent of the firms. Corporate event data included in $S^l_{i,t}$ comprise the following corporate action types: capital changes, corporate events, and distributions, all as defined by *Bloomberg*.[10]

In the benchmark results, the parameters of the model are estimated using estimation and event windows of 180 and 15 calendar days before each event, roughly corresponding to 112 and 10 market-trading days, respectively, and using lumped returns.[11] Nevertheless, results for different estimation windows, event windows, and using trade-to-trade returns to control for thin-trading are presented below as robustness checks.

[9] A letter was sent to each parent company with missing information requesting data on initial investment date and size of subsidiaries, reaching a response rate of about 30 percent.

[10] The following specific corporate actions are included: *Acquired, Acquisition, Cash Dividend, Corporate Meeting, Debt Offering-New Issue, De-listing, Divestiture, Equity Offering, Fiscal Year End, Change ID, Number Change, Listing Name, Change Par Value, Change Rights Offerings, Stock Buyback, Stock Dividend, Stock Split, and Ticker Symbol Change.*

[11] This means that during periods of inactivity all returns are assigned to the first day in which there is new activity.

The econometric model described in equation (1) deals with the clustering of the events under consideration in calendar time and the resulting potential cross-firm correlation of returns by allowing the error term $\epsilon_{i,t}$ to have a calendar-time component. This means that the estimated standard errors of the parameters correct for the reduced degrees of freedom by clustering the errors in the calendar-time dimension of the data. This procedure is similar to the standard approach followed in the event-study literature that uses a portfolio of firms to control for the potential correlation introduced by the clustering of the events and performing inference based only on the time variation of the average abnormal returns, but it is more efficient. Other than correcting for this clustering and for potential heteroskedasticity, across the paper, all parameters are estimated by Ordinary Least Squares (OLS).[12]

Non-parametric tests of the hypothesis that the announcements have a positive impact on parent company returns, which have better power in small samples and under non-normality (Corrado, 1989; Campbell and Wasley, 1996), can be constructed from a simple variation of the model described in equation (1) that does not include the event-time dummies and whose parameters are estimated only over the estimation window. With the parameters estimated in this manner, the abnormal returns for each firm during the event and estimation windows are computed as

$$\hat{\epsilon}_{i,t} = R_{i,t} - \hat{\alpha}_i + \hat{\beta}_i R_t^M - \hat{\gamma}_i R_{i,t}^I - \sum_{l=1}^{L} \hat{\theta}_i^l S_{i,t}^l. \tag{3}$$

These abnormal returns are used to construct two non-parametric tests frequently employed in the literature: the Corrado (1989) *rank test*, and the Corrado and Zivney (1992) *sign test*. The Corrado (1989) rank test is based on the following statistic T_t:

$$\begin{aligned} T_t &= \frac{\bar{K}_t}{\sigma(\bar{K})} = \frac{\frac{1}{N}\sum_{i=1}^{N} K_{it} - 0.5 \times (t_2 - t_0 + 1)}{\sqrt{\frac{1}{(t_2 - t_0)}\sum_{t=t_0}^{t_2}\left(\frac{1}{N}\sum_{i=1}^{N} K_{it} - 0.5 \times (t_2 - t_0 + 1)\right)^2}} \rightsquigarrow N(0,1), \\ K_{i,t} &= rank(\hat{\epsilon}_{i,t})\ t \in [t_0, t_2], \end{aligned} \tag{4}$$

where $0.5 \times (t_2 - t_0 + 1)$ is the expected value of the rank. The numerator $\bar{K}_t$ is the *mean rank deviation* of abnormal returns at event time t, and $\sigma(\bar{K})$ is the standard deviation of this mean. Under the assumption that abnormal returns are independent across time, this statistic follows a standard normal distribution, and the hypothesis that the median rank deviation of the abnormal returns at a given time τ, $\bar{K}_\tau$, is statistically different from zero can be tested by applying standard normal critical values to the statistic T_τ. As in the case of the abnormal returns, the figures presented below will show the *cumulative mean rank deviation* computed by adding the mean rank deviations during the event window, and whose standard deviation is obtained under the assumption that mean rank deviations are i.i.d. (Campbell and Wasley (1996)).

The Corrado and Zivney (1992) sign test follows a similar logic as the rank test, but focuses

[12] Results using the standard portfolio approach are similar to those reported here and available upon request.

instead of the mean sign deviations of the abnormal returns $\bar{G}_t$to build a normally distributed statistic S_t as

$$S_t = \frac{\bar{G}_t}{\sigma(\bar{G})} = \frac{\frac{1}{N}\sum_{i=1}^{N} G_{it}}{\sqrt{\frac{1}{(t_2-t_0)}\sum_{t=t_0}^{t_2}\left(\frac{1}{N}\sum_{i=1}^{N} G_{it}\right)^2}} \rightsquigarrow N(0,1). \quad (5)$$

$$G_{i,t} = \begin{cases} 1 & if\ sign(\hat{\epsilon}_{i,t}) > 0 \\ 0 & if\ sign(\hat{\epsilon}_{i,t}) = 0\ , \\ -1 & if\ sign(\hat{\epsilon}_{i,t}) < 0 \end{cases}$$

where $\sigma(\bar{G})$ is the standard deviation of the mean $\bar{G}_t$, which should be zero under the null hypothesis that the event has no impact on returns. The *cumulative mean sign deviations* and their standard deviations, reported in various figures, are computed in the same manner as the cumulative mean rank deviations.

4 Results

This section presents the results of the event study analysis of the impact of multilateral debt relief announcements described above. It first describes the results obtained for the major debt relief initiatives, followed by those obtained for country-level debt relief announcements (decision and completion points). Results from parametric and non-parametric tests and robustness analysis are presented in each case.

4.1 Major Debt Relief Initiatives

The evolution of the estimated cumulative abnormal return $\widehat{CAR_\tau}$ for the three major debt relief initiatives, in an event window of 10 trading days around the event date is reported in Table 4 and depicted in the various panels of Figure 3, along their 90 percent confidence bands . Panel A shows the CAR obtained by pooling the three major initiatives, and panels B to D display the CAR separately estimated for the HIPC initiative, enhanced HIPC initiative, and MDRI, respectively.

The announcement of a major debt relief initiative is associated with a statistically significant increase in the CAR of about one percentage point (Panel A in Figure 3). While cumulative abnormal returns are 10 basis points three days before the announcement, they increase to 140 basis points one day after the announcement (Column (1) of Table 4). Considering that parent companies are large relative to their subsidiaries, this increase is economically significant and suggests a much larger increase in the underlying value of the affiliates. For instance, if a parent company's operations in all HIPC countries represent 10 percent of its overall value (roughly the median ratio of subsidiary to parent employment in the data), a one percent increase in the value of the parent company is

consistent with a 10 percent increase in the value of those operations.[13] The results, therefore, indicate that the announcement of major debt relief initiatives conveys positive news for South African multinational companies with affiliates in eligible African HIPC countries that translate in an abnormal increase in their share returns.

The figures in Panels B to D show that there is heterogeneity in the response to the different major debt relief initiatives. The announcement of the original HIPC initiative does not have a significant impact on the returns of parent companies (Panel B). So, apparently financial markets did not perceive this announcement as affecting the valuation of parent companies with ongoing operations in HIPC eligible countries. However, this evidence has to be taken with caution because in the data there are only 10 South African parent companies with activities in HIPC countries in 1996. On the contrary, the announcement of the Enhanced HIPC initiative and the MDRI results in a statistically significant increase in cumulative abnormal returns of about two percentage points (Panels C and D). The CAR increases from -30 basis points three days before the announcement of the Enhanced HIPC to 150 basis points the day of the announcement. In the case of the MDRI, the CAR rose from -20 basis points three days before the event to 140 basis points the day after it, and climbed to 200 basis points ten days after the announcement of the initiative. These results support the hypothesis that markets considered the last two major debt relief initiatives as significantly positive news for parent companies with operations in eligible countries.

The conclusions about the impact of major debt relief initiatives on the pattern of cumulative abnormal returns are robust to changes in the length of the estimation and event windows. Results for different estimation windows are summarized in the various panels of Figure 4, where the bold lines depict the evolution of the baseline estimates of the CAR–obtained with an estimation window of 112 trading days, and the thin lines display the evolution of the CAR for smaller estimation windows ranging from 52 to 102 trading days, in increments of 10. The shaded area corresponds to the envelope of the estimated patterns, and the crosses mark whether the CAR are statistically significant. It is clear in the figures that the pattern of the CAR does not vary importantly with the reduction of the estimation window, especially for the Enhanced HIPC and MDRI, where not only the sequence of CAR evolves similarly regardless of the estimation window, but also the range spanned by the different estimates does not deviate importantly from the baseline results.[14]

Changing the length of the event window from the baseline level of 10 trading days around the event to 5 and 20 trading days does not qualitatively change the evolution of the CAR either, as shown in Figure 5. The level of the CAR varies with the length of the window around the announcement of the original HIPC initiative, but the pattern and level of CAR for all major initiatives together, as well as those for the Enhanced HIPC and MDRI, are largely unaffected by these changes in length.

[13] This is because the total value of the multinational equals the sum of the value of their subsidiaries. Thus, a percentage increase in the value of a subsidiary creates a percentage increase in the value of the parent that is proportional to the fraction of the total value represented by the subsidiary.

[14] Results for longer windows are not reported because the benchmark value is at the long end of values used with daily data, but the results remain unaffected.

The baseline results are also robust to changes in the sample of parent companies. This is shown in Figure 6 that summarizes the distribution of the sequence of CAR obtained after dropping one parent company at a time. At each event time, the figure shows the mean, 25^{th} percentile, 75^{th} percentile, minimum and maximum CAR estimated for that date, and marks in gray the area spanned between the minimum and maximum estimated CAR. Except for the original HIPC initiative, where each firm represents 10 percent of the sample, the distribution of the CAR at each event day is tightly concentrated around the mean value, which indicates that the pattern depicted in the baseline results is not driven by any individual parent company.

The positive impact of major debt relief announcements indicated by the evolution of cumulative abnormal returns is supported by the results of non-parametric rank and sign tests with better power in small samples with non-normal returns than standard parametric tests. The evolution of the mean rank deviations $\bar{K}_t$ during each day of the event window is reported in columns (1) to (4) of Table 5 for all major initiatives, HIPC, Enhanced HIPC, and MDRI, respectively. Similarly to the parametric tests based on the CAR, the mean rank deviations take a positive and statistically significant value within one day of the event date, except for the original HIPC initiative of 1996. Furthermore, in the three events where significant rank deviations are found, there is no other positive significant rank deviation within the event window, which further supports the association of these abnormally high returns with the event under consideration. The magnitude of the rank deviations, between 11 and 18, are also economically significant. They indicate that the ranks of the CAR in those dates are at least 10 places higher than what would be expected by chance, which corresponds to 20 percent of the expected rank value.[15] These changes in the rank of abnormal returns are clearly displayed in panels A to D of Figure 7 that exhibits the cumulative mean rank deviations during the event window and their 90 percent confidence bands. Except for the figure in Panel B corresponding to the original HIPC initiative, the rank deviations documented in Table 5 are large enough to induce a clear and significant break in the cumulative values.

Similar results are obtained for the median sign deviations $\bar{G}_\tau$, whose evolution within the event window is reported in Table 6 and depicted in Figure 8 in cumulative form. Again, except for the original HIPC initiative, the results exhibit positive and significant deviations immediately after the event date. After the announcement, abnormal returns are much more likely to be positive than expected by chance. As in the case of parametric tests, these findings are robust to variations in the estimation windows (not reported).

The lack of significant results for the original HIPC initiative with these non-parametric tests with better power than parametric tests in small samples of firms, and in cases of non-normally distributed returns, as shown by Corrado (1989) and Campbell and Wasley (1996), makes unlikely that the lack of impact of the original HIPC on parent companies' returns stems from the small number of firms under consideration, and supports instead the view that the original initiative did not have a noticeable impact on these parent companies indirectly affected. One could conjecture that this lack of impact could arise from the requirements that eligible countries had to meet under

[15] Based on the length of the windows the expected rank is 66.

the original HIPC initiative to begin receiving some form of relief, which the markets could have anticipated were not going to be met by a broad set of countries, although, of course, this remains to be proven.

Although the JSE is nowadays a liquid emerging stock market, it was considerably smaller and less liquid in 1996, just a few years after the end of the apartheid and international and domestic restrictions to capital flows. This means that thin-trading and the resulting volatility and non-normality of returns can be a serious problem in earlier years, although the listing of smaller companies in later years may also result in the presence of illiquid stocks in the final part of the sample. To check if this problem is driving the results, the CAR were also estimated after correcting for thin-trading by computing trade-to-trade returns, as suggested by Maynes and Rumsey (1993). The sequences of the various estimated CAR, depicted in Figure 9, show that the baseline results are not fundamentally affected by the illiquidity of some stocks.

The baseline results reported above consider as event dates the announcements of debt relief initiative taking place in the Summit Meetings of Heads of State and Government of the G8. Nevertheless, as discussed in section 2, the details of the initiatives–including the eligibility criteria, were typically sorted out during the following Annual Meetings of the Board of Governors of the World Bank and IMF taking place in September of the same year. It is, therefore, possible that some valuable information affecting the returns of companies with interests in HIPC countries could be released around these dates instead. To check for this possibility, the evolution of the CAR was also estimated around the dates of the World Bank and IMF Annual Meetings reported in Table 1. The results, presented in Figure 10, do not show much evidence of a break in the pattern of abnormal returns around these alternative event dates, except in the case of the enhanced HIPC initiative (Panel C). There is some evidence of a significant increase in CAR just before the announcement of the original HIPC initiative (Panel B), but this result is not robust to the consideration of thin-trading issues (not reported). When pooling all major initiatives together (Panel A), as well as when looking at the MDRI (Panel D), there is no significant impact on the sequence of CAR around the annual meetings' dates. The results, therefore, tend to indicate that the announcements of the launching of the various initiatives by the heads of state of industrial countries are the ones that are considered as good news for firms with operations in HIPC countries by financial markets, suggesting that for the most part, financial markets assume that once those announcements are made, the details of the implementation are of second order importance.

4.2 Country Level Announcements

The impact of the announcements of major debt relief initiatives on parent companies with operations in HIPC eligible countries indicates that markets believe these countries will eventually get debt relief. However, at the time of these announcements, there is still uncertainty about whether and when a specific country will meet the conditions for HIPC and MDRI relief. This uncertainty is resolved as countries advance through the HIPC process and reach decision and completion points. So, the formal announcement of a country reaching one of these milestones could in principle affect

the returns of a related parent company. The following results test for this possibility.

The estimated sequences of cumulative abnormal returns for decision and completion point events during a 10 trading-day event window, along with their 90 percent confidence bands are depicted in panels A and B of Figure 11, respectively. The figures show no significant increase in CAR around the event dates for decision or completion points. However, in both cases the CAR exhibits a pre-event decreasing trend that stops and slightly reverse around the announcement dates, and could indicate some degree of market response to the announcements. Looking separately at decision and completion points reached under the HIPC and Enhanced HIPC does not significantly affect the results (not reported). In sum, parametric tests offer little support to the hypothesis that the resolution of the uncertainty about a country getting debt relief impacts the stock returns of parent companies with affiliates in that country.

Non-parametric tests, however, are more supportive of the hypothesis that these announcements have some effect on stock returns. The estimated mean rank deviations and mean sign deviations of the rank and sign-tests statistics for decision and completion points are reported in Table 8. Both tests produce positive and statistically significant statistics at the date of the announcement of a completion point and immediately after it (between dates 0 and 2, see columns (2) and (4)). Since these tests are better able to deal with the non-normality associated with trends in the abnormal returns around the events (momentum) and are also more powerful than parametric tests, they provide more robust evidence than parametric tests based on the estimated CAR. The magnitude of the increases in rank and sign statistics is, however, smaller than that estimated for the major initiatives (Tables 5 and 6). The rank of abnormal returns is at most 8 places higher around a completion point than expected by chance, compared with at least 10 for major initiatives. The mean sign deviation is also smaller, reaching values of about 0.2 instead of the 0.4 obtained for major initiatives.

In summary, while the evidence cannot reject the hypothesis that the announcement of a completion point has some positive impact on the returns of parent companies with affiliates in the benefited country, the size of the impact is small compared with that of major initiatives. This is not surprising considering that country level announcements affect parent companies only through their operations in that individual country, while major initiatives impact them through their operations in all eligible countries. It seems that the breadth of the impact of major initiatives compensates for the remaining uncertainty about the timing of debt relief to specific countries to induce movements in the returns of parent companies.

4.3 Does the Intensity of Exposure Matter?

The baseline results are based on identifying abnormal returns of parent companies with operations in HIPC countries controlling for market and industry movements, but do not exploit variation in the exposure to the events across parents. Any two South African multinationals with operations in a HIPC country at the time of an announcement are considered as exposed to the event regardless the size of their operations. However, to the extent that the abnormal returns documented above result

from an improvement in the prospects of exposed companies, one would expect parent companies with relatively larger interests in HIPC eligible countries to benefit relatively more from the events. Therefore, differences in the intensity of exposure to the event can be used to build an additional test of the hypothesis that the stock price response to the announcements comes from their significance for firms' prospects, and to provide further support to the mechanism behind the results.

To build this test I construct a measure of the exposure of a parent company to a HIPC event by computing the ratio of the total employment of its affected affiliates to the parent's total number of employees. The focus on employment as a size measure instead of assets is for data availability reasons; while data on parent company's assets is easy to obtain, most subsidiaries only report employment data to McGregor (2006). Employment data for those subsidiaries with some available information is typically obtainable only for 2005-2006, so subsidiary employment is considered as a fixed subsidiary characteristic and is normalized by parent total employment data for the same year. Based on these data, a parent's company exposure to an announcement at time t is computed as the ratio of the total employment of all its subsidiaries operating in benefited countries at that moment, to the parent's total employment. Recognizing that this measure is likely to contain an important amount of noise because of the assumptions required to extend the sample coverage, the final measure does not exploit the continuous nature of this exposure indicator but instead classifies parent companies in two groups depending on whether its exposure indicator is above or below the median level, and compare the behavior of the abnormal returns across these two groups.

The evolution of the CAR for parent companies with relatively high and low exposure is reported in panels A and B of Figure 12. Panel C reports the evolution of the differential effect of the exposure on these $CARs$ and their 90 percent confidence bands. The response of CAR in parent companies with relatively higher exposure to the events is clearly larger than that of less exposed companies (see Panels A and B). Moreover, this difference is significantly different from zero at conventional levels immediately after the event. As shown in Panel C, which exhibits the evolution of the difference in CAR for firms with relatively high exposure, the CAR of these firms increases clearly more than that of firms with low exposure.

The results reported in this section show that returns of multinational firms with relatively larger interests in countries benefited by multilateral debt relief increase relatively more after the announcements of these initiatives. This finding provides strong support to the hypothesis that the abnormal returns for parent companies exposed to debt relief events in the baseline estimates are a consequence of the market's assessment that the events convey positive news for the value of these companies. Results in the next section further explore the reasons behind these assessments.

4.4 Economic Prospects versus Future Taxation

As discussed in the introduction, debt relief can increase the value of firms with operations in benefited countries by leading to higher growth, aggregate demand, and firms' gross profits, and by reducing expected future taxation and increasing after-tax profits. This section presents results aimed to disentangle what of these channels is most likely to be responsible for the stock return

response of parent companies. To this end, it separately looks at the impact of the announcements of major initiatives on the returns of parent companies operating in industries that are likely to have different sensitivities to taxation and economic prospects.

Resource extraction is typically considered an *enclave* industry, whose rents are readily taxed, and even expropriated, especially so if they are foreign owned (Engel and Fischer (2008)), and investment and production in these industries is sensitive to ownership risk (Bohn and Deacon (2000)). Also, resource extraction produces commodities sold in global markets, so gross profits in this industry depend little on the economic growth of the host country. Thus, it can be expected that this industry would benefit relatively more by a reduction in expected future taxes than by an improvement in future economic conditions. On the contrary, the performance of firms in non-tradable service industries depends mainly on local economic conditions and, at the same time, for political economy reasons, these industries may be a less tempting target for taxes because they tend to be more labor intensive. Therefore, the differential response of stock returns of parent companies operating in resource extraction versus companies operating in services can be used to test whether the positive stock return impact of major announcements documented above comes mainly from the market's assessment of better economic prospects for the benefited countries or from a reduction in expected taxes.

The evolution of cumulative abnormal returns and their corresponding 90 percent confidence bands for companies in resource extraction and service industries, as well as the difference in CAR between these two industries during a 10-day window around the announcement of major initiatives is reported in Figure 13. The figure shows that the CAR experiences a larger and more significant increase around the event day for parent companies in resource extraction (Panel A) than in services (Panel B). While the CAR of resource companies reaches five percentage points and is statistically significant at 10 percent level since day zero, those of service companies only climb up to one percentage point and is statistically significant at 12 percent. This differential response can be clearly seen in Panel C, which shows that CAR of companies in resource industries is higher than those of companies in service industries, and that this difference is significantly different from zero in various post event dates (days, 3, 7, and 8)

Thus, under the assumption that stock prices of companies in resource extraction industries are relatively more responsive to expected taxation than those of companies in the service sector, the stronger positive stock returns' response of the former relative to the latter suggests that the positive market response to announcements of major debt relief initiatives documented in the baseline estimates is mostly due to an expected reduction in future taxation rather than improved economic prospects.

The evidence in Figure 13 also helps to dispel the possibility that the abnormal returns could come from firms in non-tradable industries benefiting from a real appreciation resulting from the increase in net aid inflows associated with debt relief (Rajan and Subramanian, 2005a; Rajan and Subramanian, 2005b). However, if this mechanism were driving the results, the resource producing industries, which are tradable, should experience a smaller abnormal stock price response than

non-tradable industries, exactly the opposite of what is found in the data.

5 Conclusions

There has been considerable attention in recent years on the debt problems faced by poor countries, and numerous calls for debt relief coming from all sectors of society, and from actors ranging from the religious leaders to rock stars. These calls have been based on arguments ranging from the moral wrong of rich countries collecting debt from people at the brink of starvation, to the economic costs of debt overhang, and have encompassed issues such as the fight against poverty and the irrationality of permanently rolling over multilateral loans (ever-greening).

This paper has focused on the economic rationale for debt relief and looked for evidence that multilateral debt relief initiatives improve the economic prospects of benefited countries. In contrast to existing literature, this is done by conducting an event study to overcome the standard econometric problems of estimating aggregate relations between debt relief and macroeconomic performance.

The evidence presented in the paper overwhelmingly indicates that the announcement of multilateral debt relief initiatives conveys good news for receiving countries according to financial market's views. The stock return of firms with affiliates in these countries experiences an statistically and economically significant. abnormal increase around the dates of the formal announcements of the initiatives This increase is larger for firms with relatively larger interests in receiving countries and seems to come from the perception that future taxes will be lower as a result of debt relief. Although indirect, this evidence supports the debt overhang argument for debt relief.

As in any empirical exercise, there are caveats to keep in mind despite the strength of the evidence . First, the results directly show that multinationals operating in benefited countries benefit, most likely because their subsidiaries benefit. The interpretation that the country as a whole benefits depends on these firm's value to be positively correlated with the state of the country's economy and, while plausible, remains an unproven assumption. Second, the results in this paper indicate that the benefit is quantitatively meaningful from the point of view of parents and subsidiaries, but even if the country as a whole benefits, the size of the effect will surely differ from my estimations. The evidence presented here has to be considered as highly indicative of the presence of a positive impact of debt relief rather than a quantification of that impact. As it is almost always the case, the benefits of this approach in terms of cleaner identification are weighed by the cost of separating from the immediate object of interests, namely the aggregate growth effect of these initiatives. Finally, an event study methodology exploits, by construction, the local variation of the data to identify the consequences of a specific event; everything occurring outside the event windows is considered as potentially contaminated by other developments. This is, of course, an untested identification assumption. It is, therefore, impossible to know within this framework whether the financial market's views of the consequences of these initiatives have remained in time or reversed as a result of further news.

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Table 1. Chronology of HIPC Initiatives and MDRI

June 27, 1996[a]	**G8 summit in Lyon, France** The proposal of the HIPC Initiative was accepted, except the idea of IMF's gold sales to finance debt relief, which Germany strongly opposed. Options for financing is yet to be finalized.
September 29 - 30, 1996[b]	*Annual Meetings of the IMF and World Bank* The HIPC Initiative is approved by the IMF and the World Bank. Agreement by the G-7 nations to increase debt cancellation from 67 per cent (decided in Naples Terms in 1994) to a maximum of 80 per cent is followed by the approval of the Initiative.
June 18, 1999[c]	**G8 Summit in Cologne, Germany** An amendment of the HIPC Initiative is agreed.
September 27, 2003	*Annual Meetings of the IMF and World Bank* Enhanced HIPC Approved by the IMF and the World Bank.
July 8, 2005[d]	**G8 Summit in Gleneagles, Scotland** As much as 100% debt cancellation for the HIPCs owed to the World Bank, the IMF and the African Development Bank is committed by G8 nations.
September 26, 2005[e]	*Annual Meetings of the IMF and World Bank* The IMF and the World Bank agree to endorse 100 percent debt cancellation for the HIPCs.

a. Source: Deutsche Presse-Agentur, June 28, 1996
b. Source: Financial Times (London, England), September 30, 1996
c. Source: The Independent (London), June 19, 1999
d. Source: World Markets Analysis, July 11, 2005
e. Source: World Markets Analysis, September 27, 2005, and Agence France Presse,

Table 2. Summary Statistics for Parent Companies

Assets and annual sales of the parent companies are from the latest available of the 2005 or 2006 fiscal year.
Source: Bloomberg, Worldscope, and the Major Companies Database.

Parent company	Assets (US$ million)	Annual sales (US$ million)	Number of subsidiaries in HIPC countries
Aveng LTD	1,491.44	2,239.69	9
Alexander Forbes LTD	19,527.85	812.93	7
AECI LTD	1,161.01	1,125.71	7
African Life Assurance Company LTD	2,078.34	484.41	10
Afgri LTD	914.87	794.40	1
African Oxygen LTD	590.26	504.79	4
Anglogold Ashanti LTD	9,326.19	2,999.26	8
African Rainbow Minerals LTD	2,176.20	688.41	13
Astral Foods LTD	323.54	772.07	1
ABSA Group LTD	73,743.23	8,109.47	3
Barloworld LTD	5,310.40	6,358.80	8
Business Connexion Group LTD	355.93	477.76	3
Bell Equipment LTD	304.18	526.24	3
BHP Billiton plc	7,226.10	4,788.95	1
Bidvest Group LTD, the	4,169.57	11,509.75	11
First Rand LTD	86,354.93	10,718.55	2
Gold fields LTD	4,711.83	2,175.26	2
Grindrod LTD	1,082.87	1,862.86	10
Illovo sugar LTD	690.39	887.80	4
Imperial Holdings LTD	5,594.28	8,058.53	4
Massmart Holdings LTD	1,432.59	4,462.85	6
MTN Group LTD	14,435.06	4,597.84	8
Metorex LTD	241.50	226.77	1
Nedbank Group LTD	63,287.46	7,060.32	1
Nampak LTD	1,852.19	2,311.11	12
Sabmiller PLC	4,038.58	1,843.61	14
Standard Bank Group LTD	144,324.00	12,215.52	8
Steinhoff International Holdings LTD	4,745.42	4,801.66	2
Shoprite Holdings LTD	1,480.85	4,991.26	10
Santam LTD	2,504.62	1,727.59	2
Sasol LTD	15,364.61	12,272.12	6
Sun International LTD	1,119.18	886.06	1
Tongaat-Hulett Group LTD, the	1,348.82	1,118.10	1
Tourism Investment Corporation LTD	138.23	195.87	1
Unitrans LTD	756.33	1,996.00	3
Median	2,078.34	1,996.00	4.00

Table 3. Industry Composition of Parent Companies

The number of parent companies is the average for the period 2001-2007. A company's industry classification comes from FTSE/JSE African Index series. Source: Bloomberg.

Industry	Number of parent companies
Basic industries	4
Cyclical consumer goods	2
Cyclical services	7
Financials	7
General industries	4
Information technology	1
Non-cyclical consumer goods	5
Non-cyclical services	2
Resource	5
Utilities	0

Table 4. Evolution of Cumulative Abnormal Returns: Three Major Initiative Events

In each panel, columns labeled CAR report the cummulative abnormal returns (CARs) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window. CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Standard errors correct for the clustering of the events in calendar time. Panel (1) report results obtained by pooling all major initiatives together, and Panels (2), (3), and (4) separately present similar results for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005. The row labeled Number of firms report the number of companies over which abnormal returns are computed in each ocasion.

***, **, and * denote 1, 5, and 10 percent significance levels, respectively.

	(1)		(2)		(3)		(4)	
	All major events		HIPC Initiative		Enhanced HIPC Initiativ		MDRI	
Event day	CAR	Standard Error	CAR	Standard Error	CAR	Standard Error	CAR	Standard Error
-10	0.002	0.003	0.017***	0.001	-0.002	0.001	-0.001	0.001
-9	0.002	0.003	0.021***	0.002	-0.001	0.002	-0.002*	0.001
-8	0.001	0.003	0.024***	0.002	-0.004	0.003	-0.002	0.001
-7	0.000	0.004	0.022***	0.002	-0.010***	0.004	0.001	0.001
-6	0.001	0.004	0.023***	0.003	-0.010**	0.004	0.002	0.002
-5	0.003	0.006	0.021***	0.003	0.001	0.005	0.000	0.002
-4	0.002	0.006	0.018***	0.004	-0.001	0.006	-0.001	0.002
-3	0.001	0.006	0.019***	0.004	-0.003	0.006	-0.002	0.003
-2	0.006	0.007	0.017***	0.005	0.007	0.007	0.002	0.003
-1	0.010	0.007	0.016***	0.005	0.018**	0.007	0.003	0.003
0	0.009	0.008	0.009*	0.005	0.015**	0.008	0.005	0.003
1	0.014*	0.008	0.011*	0.006	0.016*	0.008	0.014***	0.004
2	0.013	0.008	0.011*	0.006	0.012	0.009	0.015***	0.004
3	0.011	0.008	0.015**	0.007	0.008	0.009	0.013***	0.004
4	0.014*	0.009	0.010	0.008	0.013	0.010	0.018***	0.005
5	0.014	0.009	0.014*	0.008	0.010	0.010	0.017***	0.005
6	0.013	0.009	0.016*	0.008	0.010	0.011	0.014***	0.005
7	0.014	0.009	0.017*	0.009	0.013	0.011	0.015***	0.005
8	0.012	0.010	0.017*	0.009	0.003	0.012	0.017***	0.006
9	0.011	0.010	0.019*	0.010	-0.001	0.013	0.018***	0.006
10	0.012	0.011	0.010	0.010	0.001	0.014	0.020***	0.006
Number of firms	68		10		23		35	

Table 5. Rank test: Three Major Initiative Events

Each column reports the sequence of mean rank deviations of abnormal returns during a 10 trading day window around each event and indicators of the significance of the test that each of those differences is equal to zero. Mean rank deviations were computed based on abnormal returns estimated over an estimation window of 112 trading days before the beginning of the 10-day event window. Event dates considered for the HIPC Initiative, the Enhanced HIPC Initiative and the MDRI, correspond to the G-8 summits held on June 27, 1996; June 18, 1999; and July 8, 2005, respectively.

***, **, and * denote 1, 5, and 10 percent significance levels, respectively.

	(1)	(2)	(3)	(4)
	Mean rank deviation			
Event day	All major events	HIPC Initiative	Enhanced HIPC Initiative	MDRI
-10	3.5	38.3***	-1.0	-3.6
-9	4.7	11.3	1.2	5.2
-8	-0.6	5.3	-4.6	0.3
-7	-4.3	-0.9	-16.0**	2.4
-6	2.0	5.9	1.8	1.0
-5	-0.9	-9.7	10.3	-5.7
-4	-0.6	-8.6	-4.0	3.9
-3	2.0	7.0	3.3	-0.4
-2	1.8	-6.7	-0.7	5.8
-1	6.7	-6.6	12.5*	6.7
0	1.5	-18.4	5.1	4.9
1	10.9**	-4.0	6.2	18.2**
2	6.6	6.2	9.2	5.0
3	-5.5	2.8	-6.8	-7.0
4	5.0	-15.6	6.2	10.2
5	3.9	15.2	1.4	2.3
6	-1.5	2.4	1.0	-4.2
7	4.1	-2.0	5.6	4.8
8	-2.0	7.2	-14.2**	3.3
9	2.6	10.0	-4.8	5.5
10	-1.0	-19.2	2.8	1.8
Number of firms	68	10	23	35

Table 6. Sign test: Three Major Initiatives

Each column reports the sequence of mean sign deviations of abnormal returns during a 10 trading day window around each event and indicators of the significance of the test that each of those differences is equal to zero. Mean sign deviations were computed based on the sign of abnormal returns of affected parent companies estimated over an estimation window of 112 trading days before the beginning of the 10-day event window. Event dates considered for the HIPC Initiative, the Enhanced HIPC Initiative and the MDRI, correspond to the G-8 summits held on June 27, 1996; June 18, 1999; and July 8, 2005, respectively. ***, **, and * denote 1, 5, and 10 percent significance levels, respectively."

	(1)	(2)	(3)	(4)
	Mean sign deviation			
Event day	All major events	HIPC Initiative	Enhanced HIPC Initiative	MDRI
-10	0.15	0.80**	0.04	0.03
-9	0.06	0.40	-0.04	0.03
-8	-0.12	0.00	-0.04	-0.20
-7	-0.21	-0.20	-0.48**	-0.03
-6	0.12	0.20	0.04	0.14
-5	-0.18	-0.80**	0.22	-0.26
-4	0.06	-0.20	0.04	0.14
-3	0.06	0.40	0.22	-0.14
-2	0.00	-0.20	-0.04	0.09
-1	0.24*	0.00	0.30	0.26
0	-0.03	-0.60*	0.13	0.03
1	0.35**	0.00	0.30	0.49***
2	0.26*	0.40	0.39*	0.14
3	-0.06	0.20	-0.13	-0.09
4	0.06	-0.60*	0.13	0.20
5	0.03	0.20	0.04	-0.03
6	0.03	0.00	-0.04	0.09
7	0.12	-0.20	0.04	0.26
8	0.00	0.00	-0.30	0.20
9	0.00	0.40	-0.22	0.03
10	-0.18	-0.40	-0.04	-0.20
Number of firms	68	10	23	35

'able 7. Evolution of Cumulative Abnormal Returns. Alternative Dating of Three Major Initiative Events

In each panel, columns labeled CAR report the cummulative abnormal returns (CARs) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window. CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Standard errors correct for the clustering of the events in calendar time. Panel (1) report results obtained by pooling all major initiatives together, and Panels (2), (3), and (4) separately present similar results for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Official implementation dates of the HIPC Initiative, the Enhanced HIPC Initiative and the MDRI on September 29, 1996; September 26, 1999; and September 26, 2005; respectively. The row labeled Number of firms report the number of companies over which abnormal returns are computed in each ocasion.

***, **, and * denote 1, 5, and 10 percent significance levels, respectively.

	(1)		(2)		(3)		(4)	
	All major events		HIPC Initiative		Enhanced HIPC Initiativ		MDRI	
Event day	CAR	Standard Error	CAR	Standard Error	CAR	Standard Error	CAR	Standard Error
-10	-0.001	0.001	0.004***	0.001	-0.003***	0.001	-0.003***	0.000
-9	0.002	0.002	0.003*	0.001	0.002*	0.001	0.000	0.001
-8	0.007**	0.003	0.005**	0.002	0.014***	0.002	0.003***	0.001
-7	0.008**	0.003	0.003	0.002	0.014***	0.003	0.006***	0.001
-6	0.007*	0.004	0.004	0.003	0.012***	0.003	0.003*	0.002
-5	0.009**	0.004	0.001	0.003	0.013***	0.004	0.009***	0.002
-4	0.010**	0.004	0.001	0.004	0.013***	0.004	0.011***	0.002
-3	0.008*	0.005	0.003	0.004	0.014***	0.005	0.005*	0.003
-2	0.001	0.006	0.007	0.004	0.001	0.005	0.000	0.003
-1	0.000	0.006	0.010**	0.005	-0.003	0.006	-0.002	0.003
0	0.003	0.008	0.011**	0.005	0.011	0.006	-0.006	0.004
1	0.006	0.009	0.004	0.006	0.022***	0.008	-0.004	0.004
2	0.007	0.009	0.005	0.006	0.028***	0.009	-0.006	0.004
3	0.010	0.009	0.008	0.007	0.028***	0.009	-0.002	0.004
4	0.009	0.010	0.007	0.007	0.020**	0.010	0.000	0.005
5	0.002	0.010	0.006	0.008	0.008	0.012	-0.005	0.005
6	0.006	0.010	0.007	0.008	0.013	0.013	-0.001	0.005
7	0.004	0.010	0.009	0.009	0.009	0.013	-0.003	0.005
8	0.000	0.011	0.010	0.009	0.004	0.015	-0.006	0.006
9	0.000	0.011	0.010	0.009	0.005	0.016	-0.007	0.006
10	-0.002	0.012	0.009	0.010	-0.007	0.017	-0.004	0.006
Number of firms	73		13		25		35	

Table 8. Rank test. Decision and Completion Point Events

Each column reports the sequence of mean rank deviations of abnormal returns of South African multinational companies with affiliates in benefited HIPC countries during a 10 trading day window around each decision and completin point events, as well as indicators of the significance of the test that each of those differences is equal to zero. Mean rank deviations were computed based on abnormal returns estimated over a window of 112 trading days before the beginning of the 10-day event window.

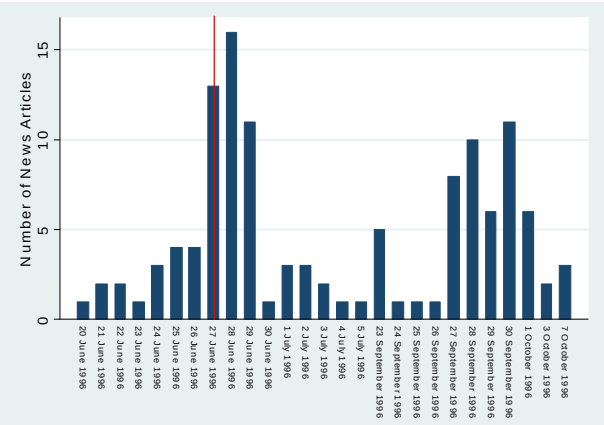
***, **, and * denote 1, 5, and 10 percent significance levels, respectively.

	(1)	(2)	(3)	(4)
	Mean rank deviation		Mean sign deviation	
Event day	Decision points	Completion points	Decision points	Completion points
-10	0.8	0.4	-0.05	0.08
-9	0.5	-3.7	-0.11	-0.20*
-8	1.9	-1.4	0.06	-0.09
-7	3.8	-5.9	0.11	-0.17
-6	-1.3	-4.4	0.11	-0.14
-5	-1.6	-1.5	0.00	-0.07
-4	0.3	-3.5	0.02	-0.07
-3	-4.4	2.2	-0.11	-0.01
-2	-5.6	2.3	-0.12	0.11
-1	-5.2	-2.3	-0.14	-0.07
0	0.5	8.1**	0.08	0.20*
1	-5.3	-1.7	-0.06	0.02
2	5.7	6.3*	0.14	0.17
3	1.1	-2.0	0.02	-0.02
4	1.4	-0.1	0.14	0.00
5	-1.2	4.0	-0.06	0.13
6	4.3	-0.8	0.08	-0.01
7	-3.0	-5.3	-0.14	-0.17
8	4.0	2.0	0.08	-0.02
9	2.7	-2.5	0.05	-0.02
10	0.1	-1.0	-0.08	0.00
Number of firms	65	92	65	92

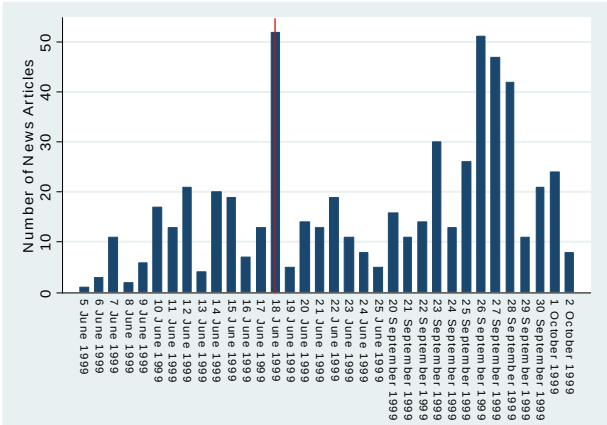
Figure 1. Distribution of News Related to Major Debt Relief Announcements

The different panels exhibit the number of press articles on the various multilateral debt relief announcements during the days around the G7 (G8) Summit Meetings where the initiatives were launched and around the Annual Meetings of the World Bank and IMF where the details of implementation where released. Panel A exhibits the information for the HIPC initiative, Panel B for the enhanced HIPC initiative, and Panel C for the MDRI. The exact days of announcements are shown by the vertical bars.

A. HIPC Initiative



B. HIPC Enhanced HIPC Initiative



C. MDRI

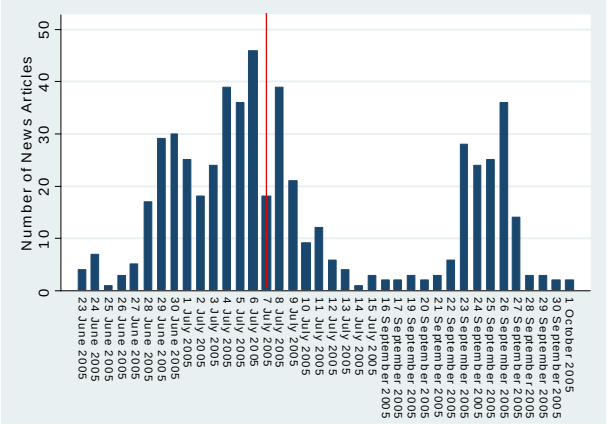


Figure 2. Distribution of HIPC Event Dates by Country

The markers in the figure show the dates of announcements of decision and completion points for African HIPC eligible countries, as well as the annoucenments of the three major debt relief initiatives (HIPC, Enhanced HIPC, and MDRI). The x-axis shows the calendar dates and the y-axis lists the different African HIPC elegible countries. The dates of the events affecting each of the countries listed in the y-axis are represented by the markers that appear in the row corresponding to each country. Decision and completion points under the original HIPC initiative are represented by '+' and '○', while 'x' and '●' represent decision and completion points under the Enhanced HIPC Initiative. Vertical lines correspond to the announcements of the three major initiatives. The thick line corresponds to the dates of the G7 (G8) summit announcements and the thin lines to the final endorsement dates.

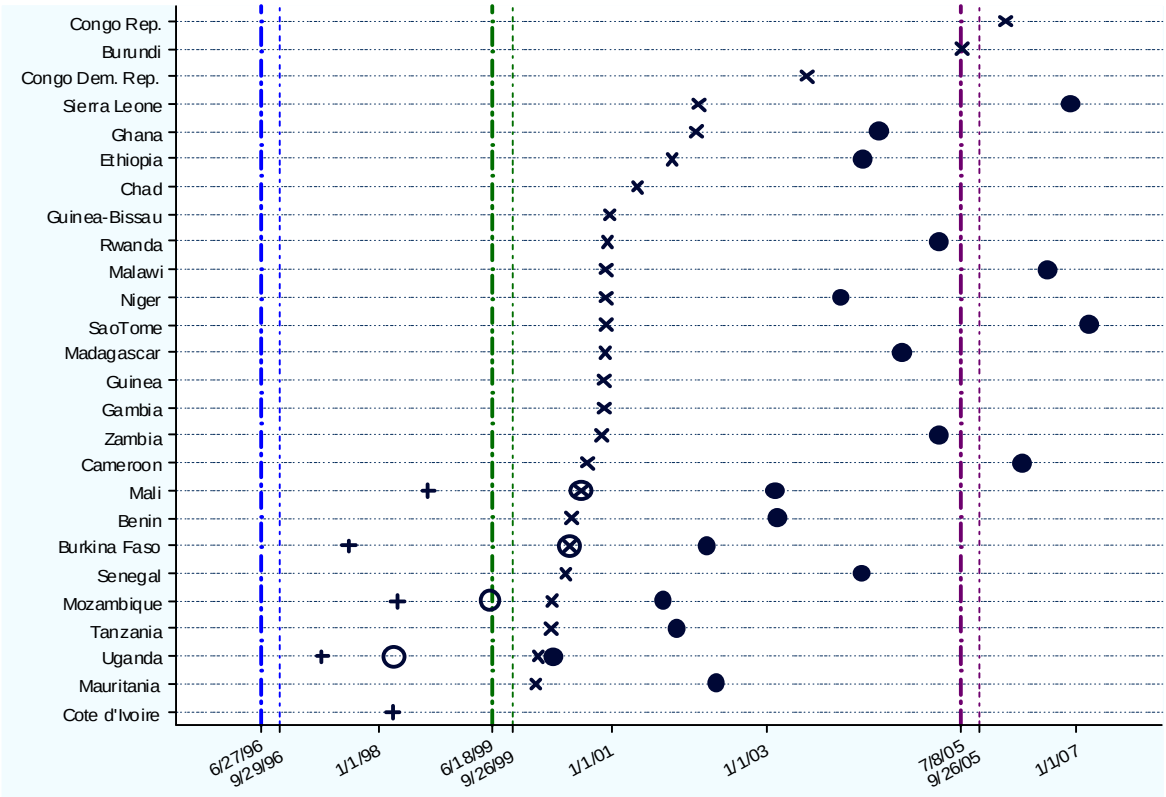
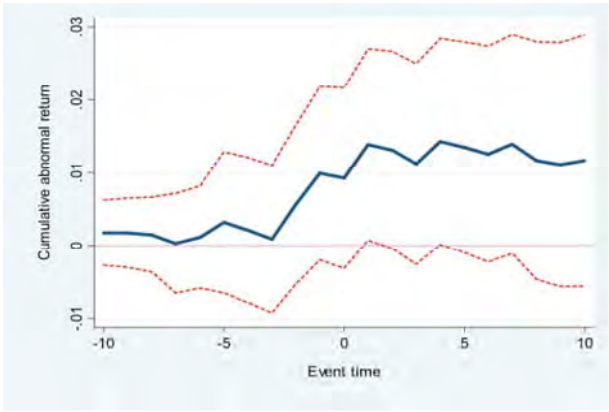


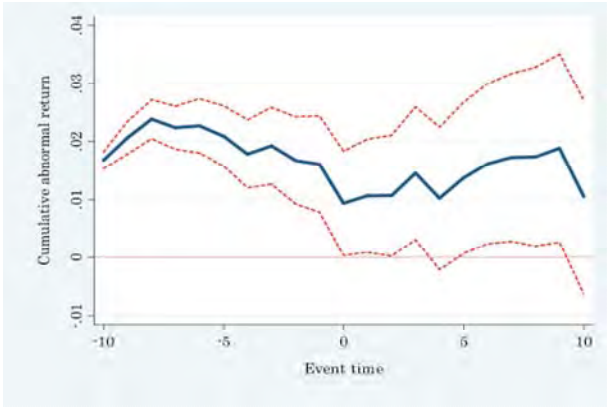
Figure 3. Evolution of Cumulative Abnormal Returns for Three Major Debt Relief Initiatives

Figures in each panel display the evolution of cummulative abnormal returns (CAR) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window around the date of the announcements (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Panel A display the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the CAR estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005.

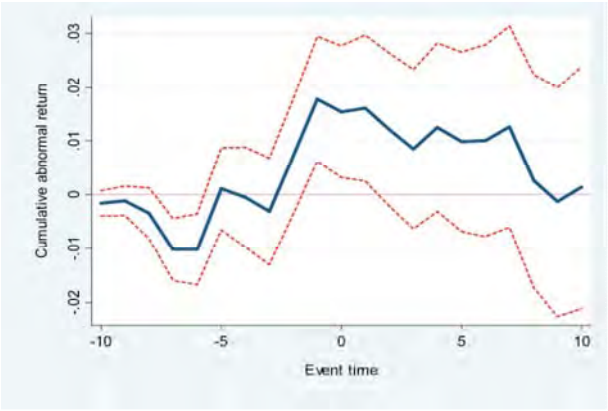
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

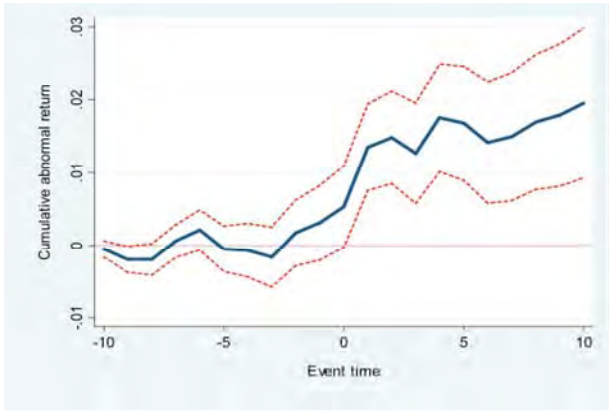
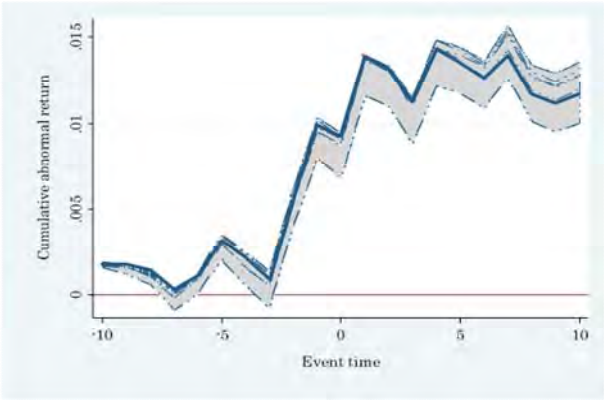


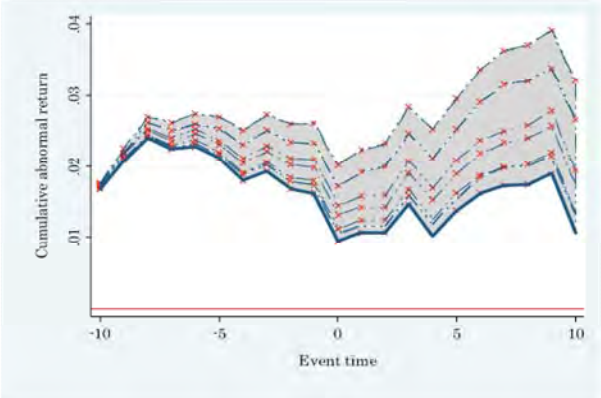
Figure 4. Evolution of Cumulative Abnormal Returns Under Different Estimation Windows

Figures in each panel display the evolution cummulative abnormal returns (CAR) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window around the date of the announcements. Different lines correspond to CAR estimated using estimation windows of different length. In each panel, the thick line corresponds to the baseline values of the CAR obtained with an estimation window of 112 trading days and the remaining lines depict the CAR obtained with shorter estimation windows ranging from 102 to 52 trading days, in intervals of 10. The gray area is the envelope spanned by the different sequences of CAR reported. Panel A display the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the CAR estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005. CAR that are significant at the 10 percent level are marked with an 'x'.

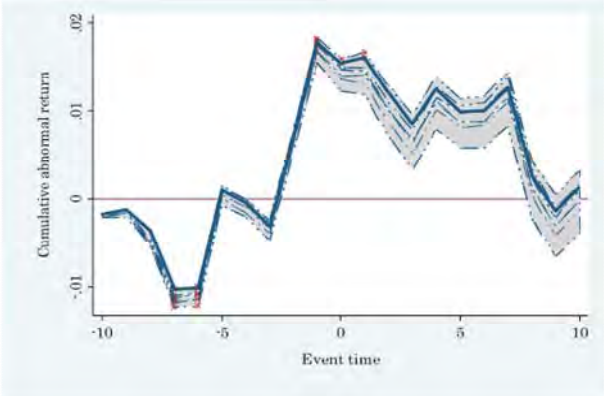
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

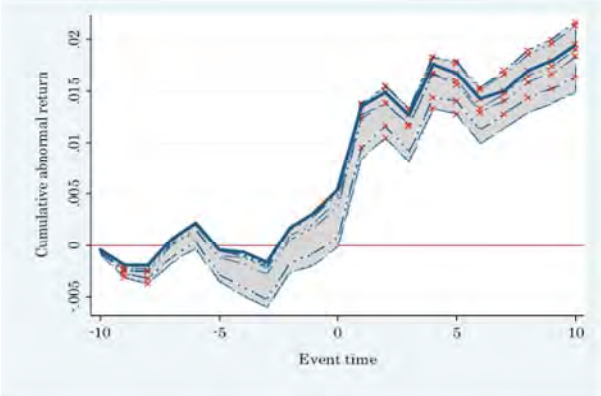
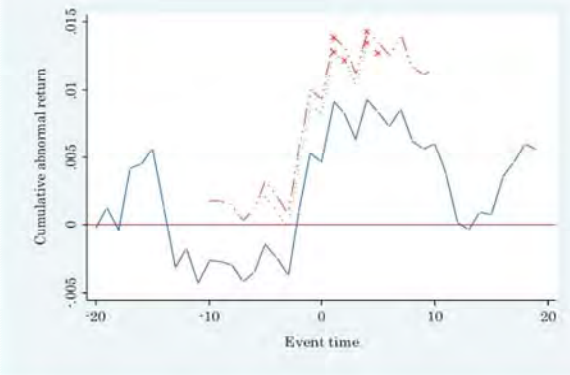


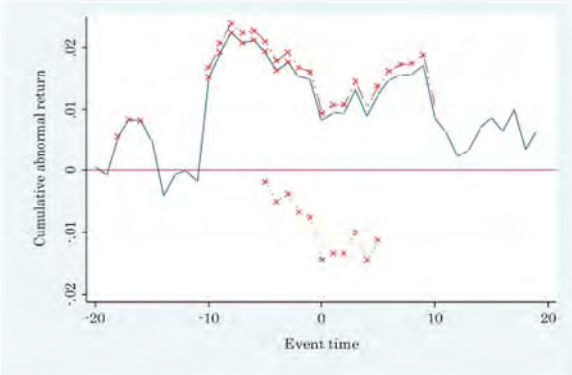
Figure 5. Evolution of Cumulative Abnormal Returns Under Different Event Windows

Figures in each panel display the evolution cummulative abnormal returns (CAR) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading day within various event-windows around the date of the announcements. In each panel, the thick line corresponds to the CAR obtained with an event window of 20 trading days around the announcements, the dashed line those for 10 trading days, and the dotted line those for 5 trading days. In all cases the estimation window is 112 trading days before the beginning of the 10 day estimation window plus (minus) the difference corresponding to the varying length of the event window. Panel A display the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the CAR estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005.
CAR that are significant at the 10 percent level are marked with an 'x'.

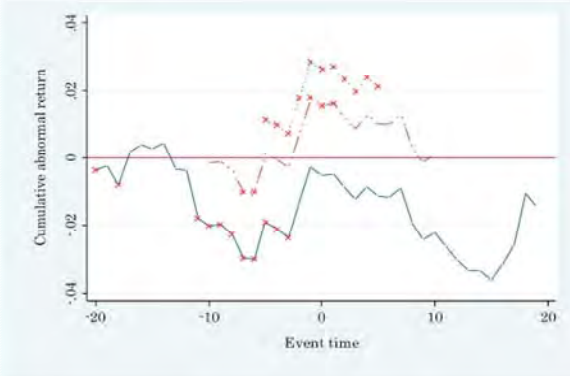
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

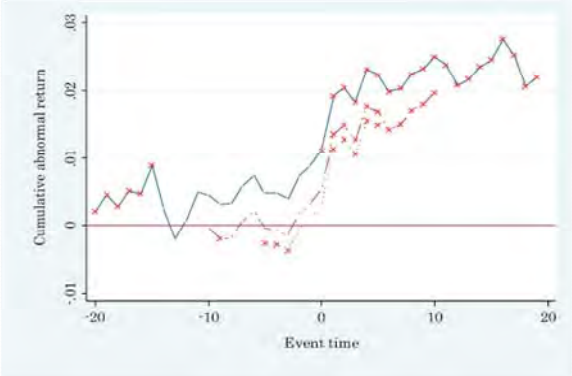
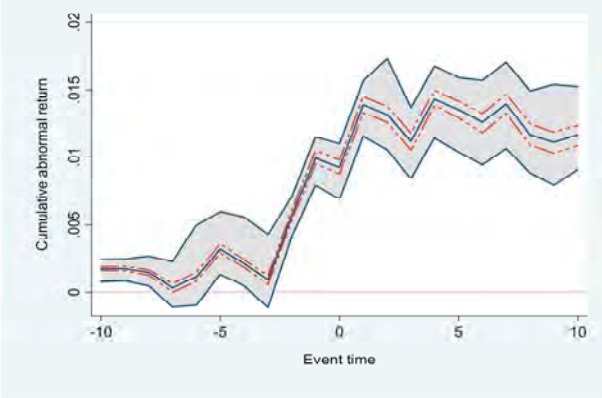


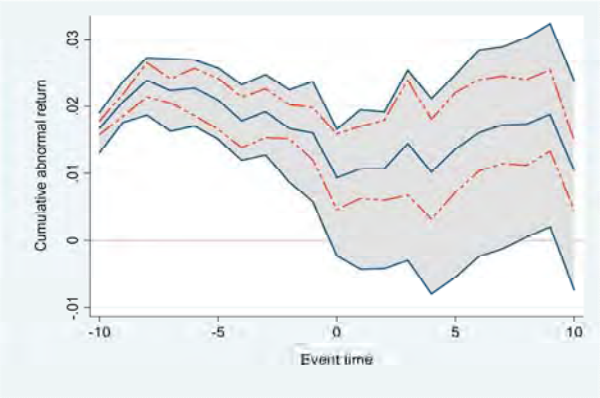
Figure 6. Distribution of Cumulative Abnormal Returns for Different Sample of Firms

Figures in each panel summarizes the evolution cummulative abnormal returns (CAR) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading in a 10 day event-window around the date of the announcements. Each of the figures display the distribution of CAR at each day in the event window obtained after sequentially dropping one of the affected firms from the sample. The gray area corresponds to the range in which the different estimated CAR fall, and is enclosed by the minumum and the maximum estimated value. Within the gray area, the continuous line is the mean of the estimated CAR, and the broken lines represent the 25th and 75th percentiles values of the CAR. In all cases the estimation window is 112 trading days. Panel A display the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the CAR estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996; June 18, 1999; and July 8, 2005.

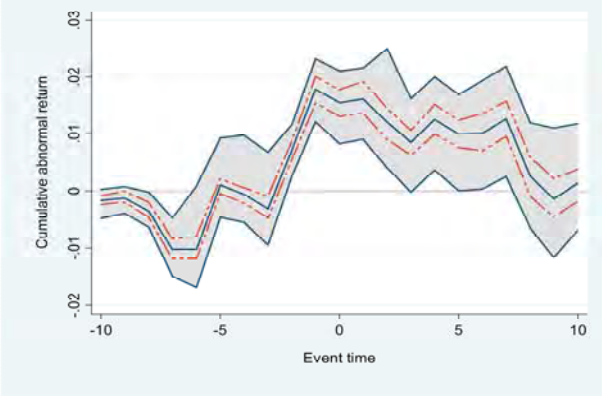
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

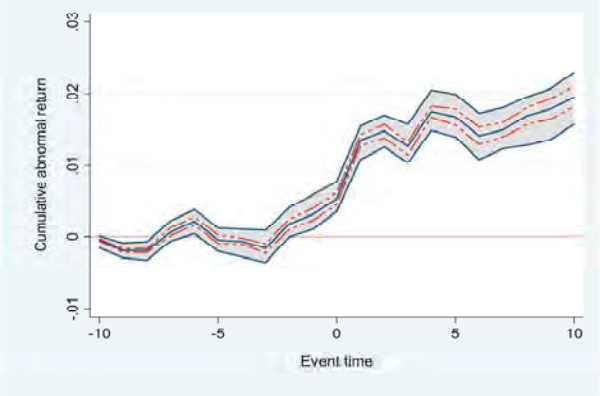
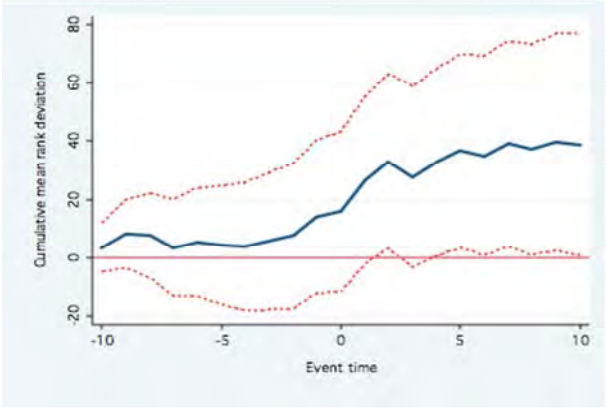


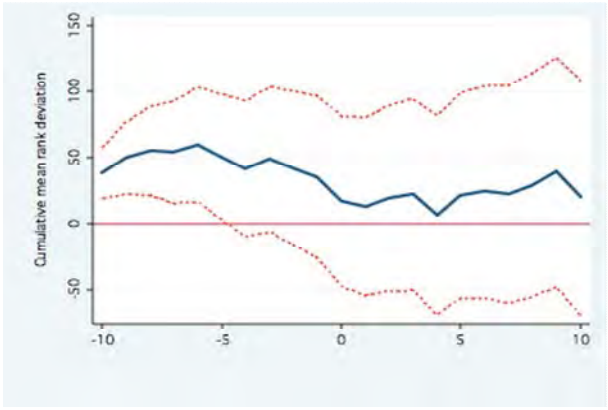
Figure 7. Evolution of Cumulative Median Rank Deviations of Cumulative Abnormal Returns for Three Major Debt Relief Initiatives

Figures in each panel display the evolution of the cumulative mean rank deviations of abnormal returns (CAR) of South African multinational companies with operations in countries eligible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window around the date of the announcements (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days, and the same windows are used to determine the ranks. Panel A display the median rank deviations of the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the median rank deviations separately estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005.

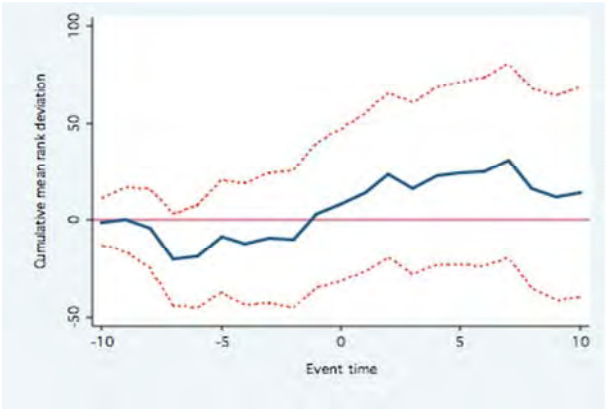
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

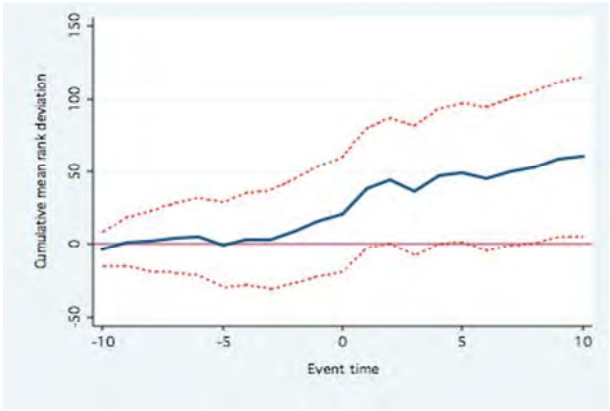
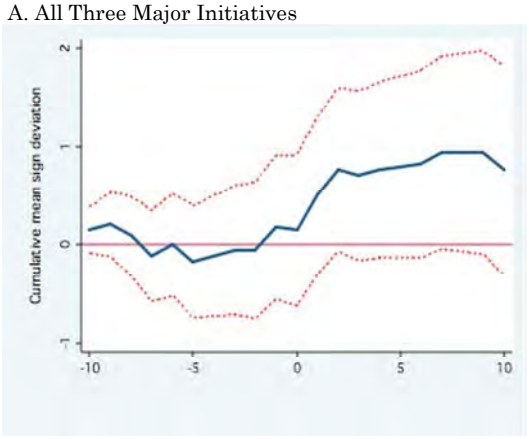


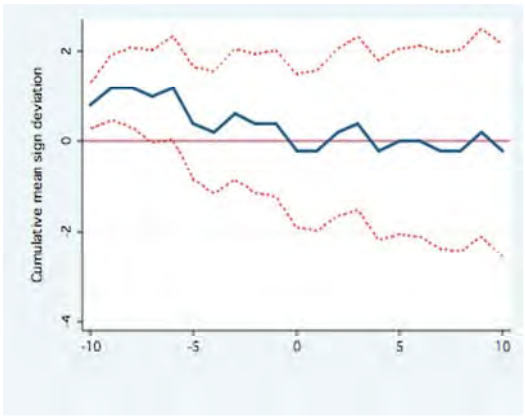
Figure 8. Evolution of Cumulative Median Sign Deviations of Cumulative Abnormal Returns for Three Major Debt Relief Initiatives

Figures in each panel display the evolution of the cumulative mean sign deviations of abnormal returns (CAR) of South African multinational companies with operations in countries eligible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window around the date of the announcements (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Panel A display the median rank deviations of the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the median rank deviations separately estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005.

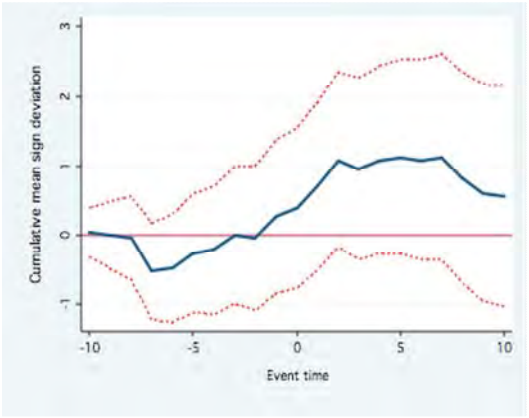
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

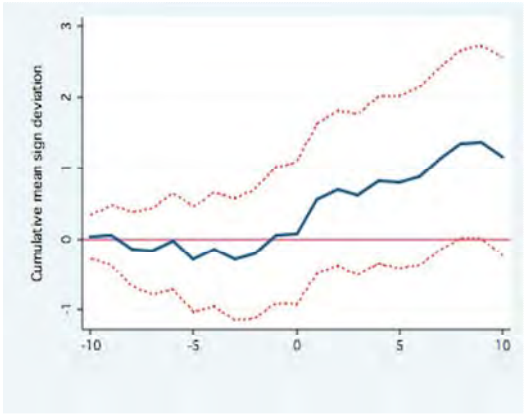
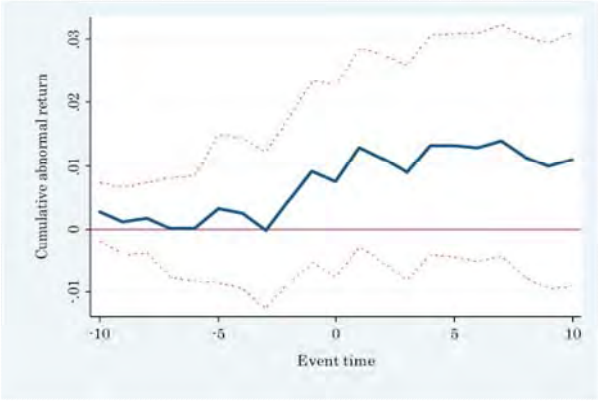


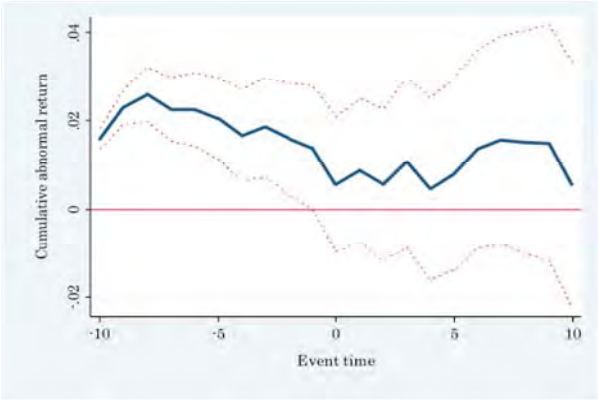
Figure 9. Evolution of Cumulative Abnormal Returns for Three Major Debt Relief Initiatives. Controlling for Thin-Trading

Figures in each panel display the evolution cummulative abnormal returns (CAR) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window around the date of the announcements (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days and controlling for thin-trading by using only trade-to-trade return data. Panel A display the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the CAR estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005.

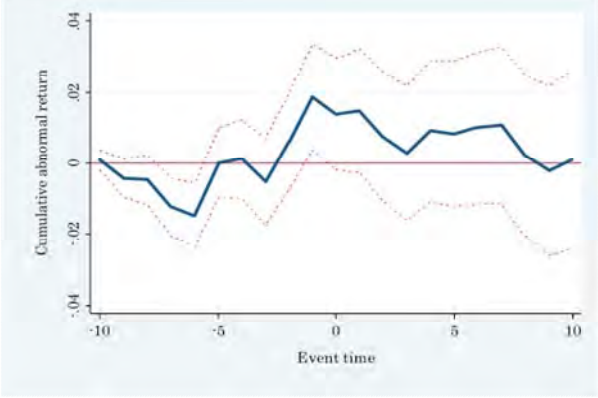
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

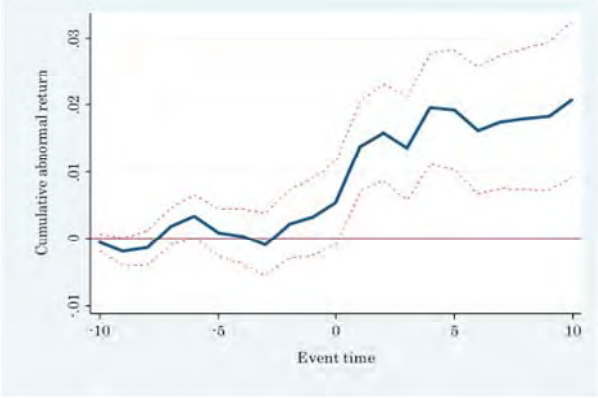
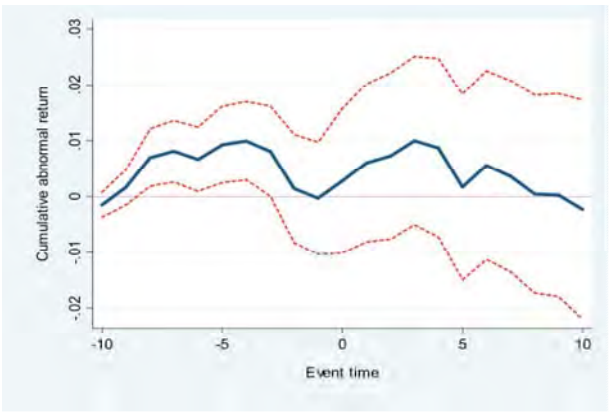


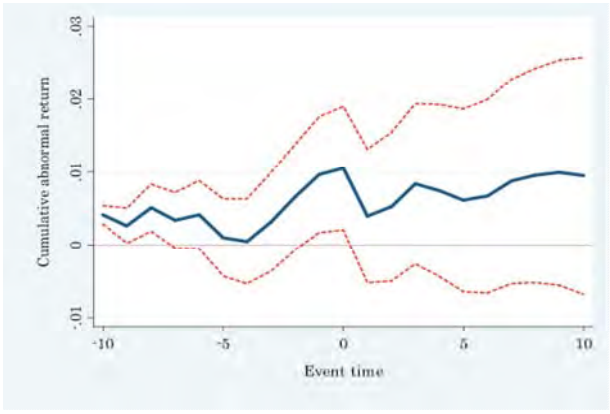
Figure 10. Evolution of Cumulative Abnormal Returns Around Final Implementation Dates of Three Major Debt Relief Initiatives

Figures in each panel display the evolution of cummulative abnormal returns (CAR) of South African multinational companies with operations in countries elegible for each stage of the HIPC and MDRI initiatives for each trading trading day within a 10-day event-window around the date of the announcements (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Panel A display the CAR obtained by pooling all major initiatives together, and Panels B to D separately display the evolution of the CAR estimated for the HIPC initiative, the Enhanced HIPC initiative, and the MDRI. Event dates considered for each of these three major initiatives correspond to the dates of the final agreements on implementation of the initatives during the Annual Meetings of the World Bank and International Monetary Fund on September 29, 1996; September 26, 1999; and September 26, 2005, respectively.

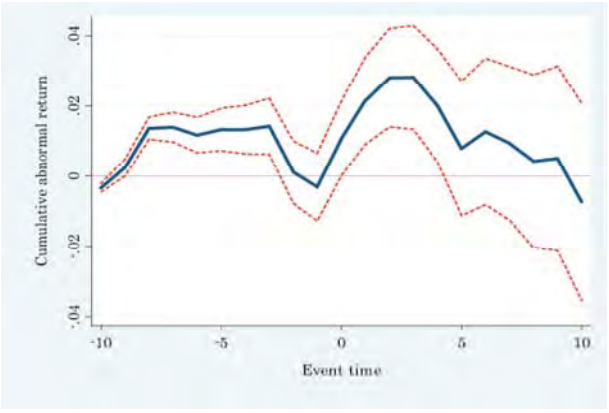
A. All Three Major Initiatives



B. HIPC Initiative



C. Enhanced HIPC Initiative



E. MDRI

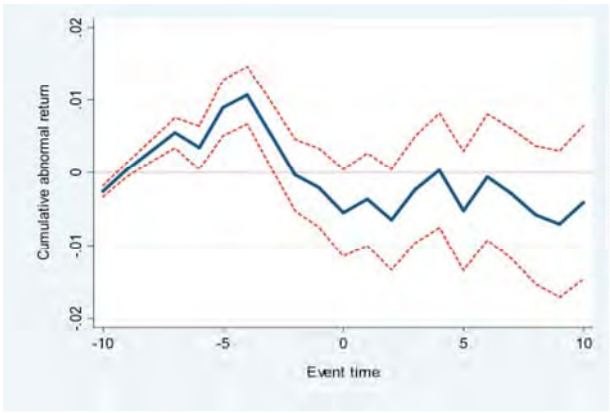
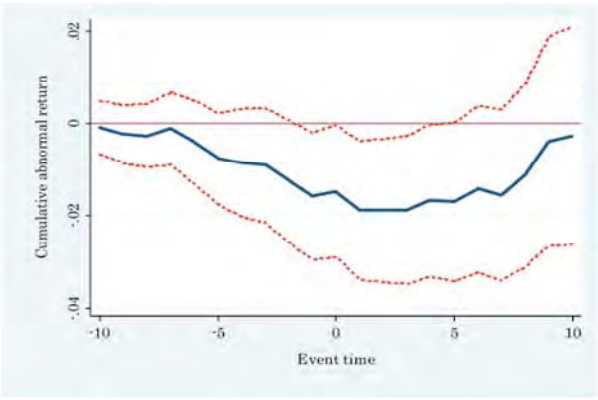


Figure 11. Evolution of Cumulative Abnormal Returns for Decision and Completion Point Events

Figures in each panel display the evolution of cumulative abnormal returns (CAR) of South African multinational companies with affiliates in African HIPC countries benefited by decision and completion points under the HIPC initiative during a 10 trading day window around the announcement of each decision and completion point (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Panel A display the CAR obtained around decision point announcements and Panel B those around completion point announcements.

A. Decision points



B. Completion Points

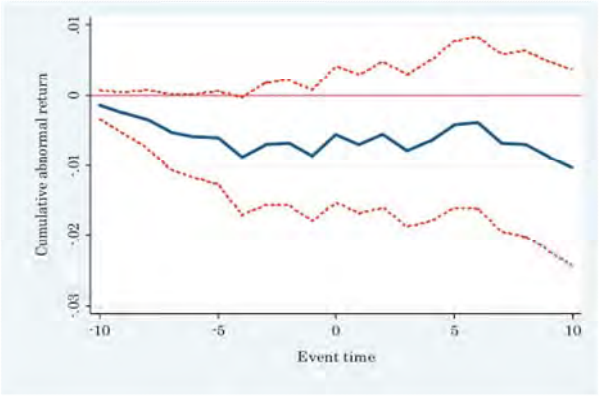
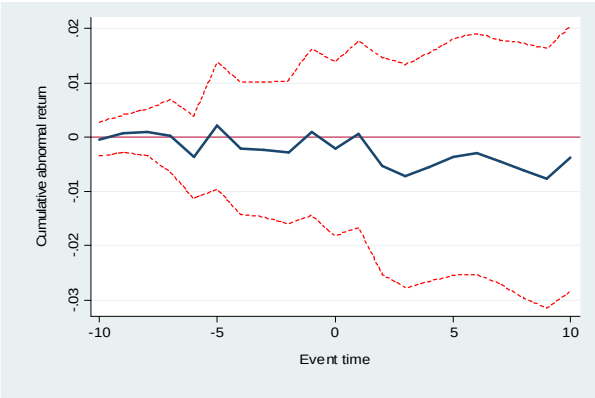


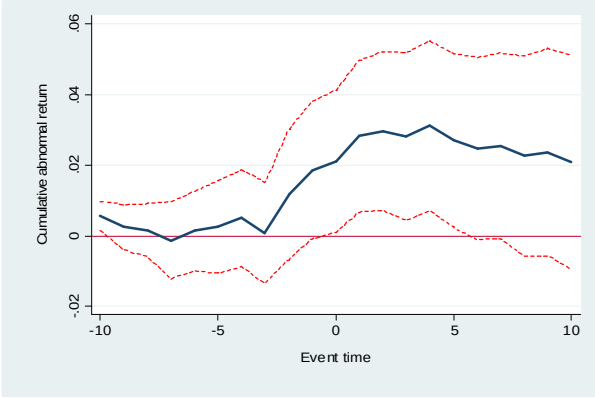
Figure 12. Evolution of Cumulative Abnormal Returns Around Three Major Debt Relief Initiatives. Firms with Relatively Small and Large Investments in HIPC Countries

Figures in each panel display the evolution of cumulative abnormal returns (CAR) of South African multinational companies with operations in countries eligible for each stage of the HIPC and MDRI initiatives for each trading day within a 10-day event-window around the date of the announcements (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Panel A (B) display the CAR of parent companies with total employment in subsidiaries affected by the events below (above) the median level across parents. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005.

A. Parent Companies with Low Subsidiary Employment



B. Parent Companies with High Subsidiary Employment



C. Difference Between Parent Companies with High and Low Subsidiary Employment

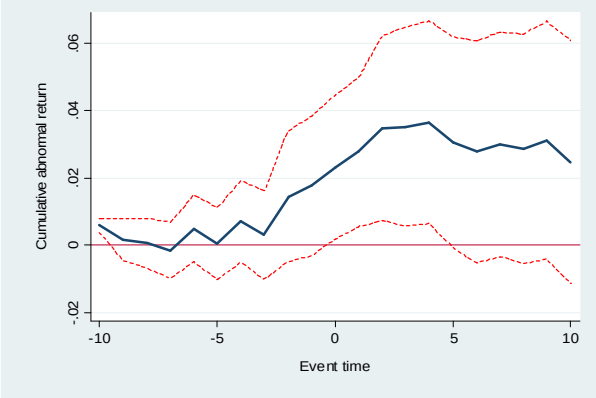
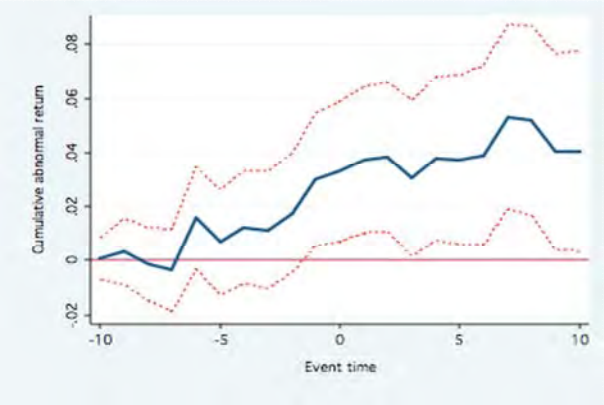


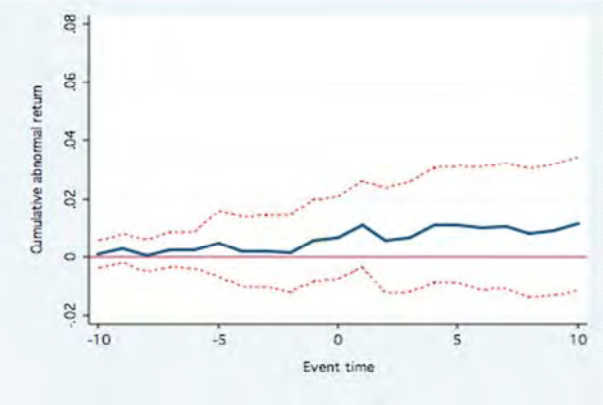
Figure 13. Evolution of Cumulative Abnormal Returns Around Three Major Debt Relief Initiatives. Firms in Resource Extraction versus Firms in Services

Figures in each panel display the evolution of cumulative abnormal returns (CAR) of South African multinational companies with operations in countries eligible for each stage of the HIPC and MDRI initiatives for each trading day within a 10-day event-window around the date of the announcements (continuous lines) and their 90 percent confidence intervals (broken lines). CAR are based on abnormal returns estimated from a two factor model using an estimation window of 112 trading days. Panel A displays the CAR of parent companies in resource extraction industries and Panel B shows the CAR of parent companies in the service sector. Event dates considered for each of these three major initiatives correspond to the dates of the G-8 summit held on June 27, 1996, June 18, 1999, and July 8, 2005.

A. Parent Companies in Resource Extraction



B. Parent Companies in Service Industries



C. Difference in CAR betwee companies in Resource Extraction and Services